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REPORTS

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SUBSURFACE INVESTIGATION AND PRELIMINARY REMEDIAL RESPONSE FOR THE MONUMENT BOOSTER GAS COMPRESSOR STATION LEA COUNTY, NEW MEXICO

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Environmental Bureau Oil Conservation Division

Prepared for:

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SECTION 1.0

1.0 Executive Summary

Hydrocarbon-impacted soil and groundwater caused by historic releases at the Monument Booster Gas Compressor Station (formerly Hobbs Compressor Station No. 2) in Lea County, New Mexico were caused by past operations of Enron Gas and Oil Company (Enron). Preliminary subsurface investigations performed by Geoscience Consultants, Ltd. (GCL) in February 1994 and Daniel B. Stephens and Associates (DBS&A) in May 1994 verified the impact from one underground storage tank (UST) and one aboveground storage tank (AST) on site. The subsurface investigation described in this report included the installation of four additional monitoring wells (MW-1D, MW-3, MW-4, and MW-5) and one soil boring (SB-7) to define the areal and vertical extent of hydrocarbonimpacted groundwater conditions in order to develop a suitable remedial response.

Based on the analytical results obtained during this subsurface investigation and previous investigations conducted by DBS&A and GCL, the soil with hydrocarbon concentrations above the New Mexico Oil Conservation Division (OCD) recommended action level of 50 parts per million (ppm) benzene, toluene, ethylbenzene, and xylenes (BTEX) and 100 ppm total petroleum hydrocarbons (TPH) does not extend beyond an approximate radius of 120 feet around the former AST and UST.

The presence of 2.52 feet of free product (crude oil) in MW-1 appears to extend an estimated 50 to 100 feet downgradient (southeast) of the former AST location. The areal extent of hydrocarbon-impacted groundwater has been estimated as covering a triangular-shaped area that covers most of the southern half of the facility (approximately 5 acres), however, hydrocarbon-impacted groundwater is not likely to have migrated beyond the north, east, and south boundaries of the facility. Due to the elevated benzene levels (0.265 mg/L) in MW-5, we cannot conclude whether the groundwater is impacted beyond the west or southwestern property boundaries. Installation of an additional monitoring well in this area is recommended. Based on the analytical results for monitoring well MW-1D and the presence of a low permeable red clay layer at the bottom of the aquifer, the vertical extent of hydrocarbon-impacted groundwater does not extend beyond approximately 24 to 34 feet below the ground surface.

The inorganic chemical analyses indicate that water samples from several monitoring wells exceed the New Mexico Water Quality Control Commission (WQCC) standards for various constituents, including aluminum, boron, chloride, fluoride, iron, manganese, and/or total dissolved solids. These elevated constituents could represent natural conditions and/or off-site sources and are not believed to be contributed from on-site operations.

Based upon the calculation of the average linear velocity of groundwater flow (365 to 730 feet/year), the age of the release (1970s to 1980s), and the documented extent of hydrocarbon impact, GCL concludes that natural processes (intrinsic bioremediation, adsorption, and volatilization) are effectively limiting the migration of dissolved-phase hydrocarbons but removal of the free product (crude oil) is necessary to effectively eliminate the source of hydrocarbons in the



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subsurface media. While intrinsic bioremediation is clearly occurring and the rate at which this hydrocarbon removal process appears to be sufficient to contain

the plume, additional data will be required over time to evaluate its effectiveness for in situ remediation.

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2.0 Introduction

Prior to GPM Gas Corporation's (GPM) acquisition of the Monument Booster Gas Compressor Station (formerly Hobbs Gas Compressor Station No. 2) in December 1994, the facility was owned and operated by Enron or its subsidiaries since approximately 1971. Hydrocarbonimpacted soil and groundwater caused by the historic releases at this site was previously identified during preliminary subsurface investigations performed by GCL in February 1994 and DBS&A in May 1994. The earlier investigations were conducted during the due diligence activities prior to the property transfer to establish a baseline assessment of the subsurface conditions with respect to past operations by Enron.

The purpose of the subsurface soil and groundwater investigation described in this report is to define the horizontal and vertical extent of hydrocarbonimpacted groundwater conditions at the Monument Booster Gas Compressor Station in order to develop a suitable remedial response. The subsurface investigation was performed in accordance with the work plan submitted by GPM to the OCD on February 23, 1995, and as approved by Mr. William Olson of the OCD in his letter to GPM dated April 5, 1995. GCL initiated the subsurface investigation at the Monument Booster Gas Compressor Station on May 8, 1995.

2.1 Site Description

The Monument Booster Gas Compressor Station is located in the NW1/4 NW1/4 NE1/4 of section 33 township 19 south, range 37 east in Lea County, New Mexico. The site is located approximately one half mile east of Monument, New Mexico. According to the Monument South, NM USGS 7.5-minute quadrangle map and survey data, the elevation of the site is approximately 3,590 feet above sea level.

The Monument Booster Gas Compressor Station covers approximately 10.75 acres within a rectangular tract of land that measures roughly 600 feet by 800 feet. The western half of the facility (approximately 5.75 acres), which contains all of the gas production equipment, is secured by a chain-link fence and locked gate as depicted in Figure 1. The eastern half of the facility, approximately 5 acres of pasture land, is not fenced. The facility is wellmaintained and undergoing numerous improvements to make the facility more automated and less prone to the hydrocarbon releases that occurred under the manually controlled operations during Enron's ownership. This investigation is focused on the former hydrocarbon release sources identified in previous reports as described below:

> One former pipeline liquids AST located near the east central portion of the facility. The AST, which lacked secondary containment and had no automatic emergency overflow shutoff devices, appears to be the major source of hydrocarbon releases identified on site. In 1992, this AST was moved to a concrete secondary containment area located approximately 120 feet south-southwest of its former location. According to the GPM superintendent of the facility, the AST was used to contain crude oil that accumulates as a low volume byproduct of the natural gas and





natural gas liquids production in the area. Approximately 35 cubic yards of hydrocarbon-impacted soils were excavated beneath the former AST location in May 1994. An unknown amount of soils were over-excavated from this area in July 1992 during the UST closure operations.

- Two used oil USTs were located approximately 100 feet north of the AST. The USTs contained used lubrication oil generated from the gas compressor engines at the facility. The two USTs were removed in September 1992 under New Mexico Environment Department (NMED) oversight. Approximately 322 cubic yards of hydrocarbon-impacted soils were removed during over-excavation operations of the former UST tank holds in May 1994.
- One used oil UST located adjacent to the north side of the former AST location. The UST contained used lubrication oil generated from the gas compressor engines at the facility. The UST was removed in September 1992 under NMED oversight. An unknown volume of hydrocarbon-impacted soils was excavated from this former UST along with those excavated beneath the adjacent AST in July 1992 during the UST closure operations.

The surrounding area is primarily used for cattle grazing and oil and gas production operations. The nearest residential dwelling is located approximately one guarter mile west of the site. According to information provided by Mr. Ken Fresquez of the New Mexico State Engineer Office, there are three registered water wells located within one half mile of the site. One well is registered for the Monument Booster Gas Compressor Station and was permitted to Northern Natural Gas on April 16, 1971. The well was permitted for use for the condensing and cooling system. According to the GPM superintendent, the well is no longer in use, as water for the compressor station is supplied by municipal water supply in Monument. The nearest off-site registered water well is located approximately one half mile west of the site, and was permitted to Mr. Darel Taylor on June 6, 1985 for domestic water supply purposes. The third registered well is located approximately one half mile south of the Monument Booster Gas Compressor Station. This well was permitted to Ms. Annie Schwertfeger on October 27, 1948, and is currently not in use. A list of the permitted water wells is provided in Appendix A. Based on the results of this investigation and previous investigations, these water wells are not likely to be adversely impacted from petroleum hydrocarbon releases from the site.

2.2 Regulatory Considerations

Environmental issues of concern to the Monument Booster Gas Compressor Station are under the jurisdiction of the OCD. Generally, releases of unrefined hydrocarbons to the soil and/or groundwater are subject to OCD guidelines as published in the document titled "Guidelines for the Remediation of Leaks, Spills and Releases" (August 13, 1993). These guidelines recommend soil remediation



action levels based on certain ranking criteria. Based on the OCD guidelines for Category I sites (ranking score > 19 points), the soil remediation action levels for benzene, BTEX, and TPH are 10 ppm, 50 ppm, and 100 ppm, respectively. Groundwater remediation action levels are compared to the WQCC standards as published in Section 3-103. The WQCC groundwater standards are listed with the analytical results in Section 4.0.

Pending OCD notification and approval, "procedures may deviate from the guidelines if it can be shown that the proposed procedure will either remediate, remove, isolate, or control contaminants in such a manner that fresh waters, public health and the environment will not be impacted. Specific constituents and/or requirements for soil and groundwater analysis and/or remediation may vary depending on site-specific conditions" (OCD, August 1993, page 1).

2.3 Regional Hydrogeology

According to published information (Nicholson and Clebsch, 1961 and Barnes, 1976), the Monument Booster Gas Compressor Station is underlain by Quaternary colluvial deposits composed of sand, silt, and gravel deposited by slopewash, and talus from the Ogallala Formation. The colluvial deposits are often calichified (indurated with cemented calcium carbonate) with caliche layers from 1 to 20 feet thick. The lithology of the colluvial deposits is very similar to that of the Ogallala since the Ogallala is the source of the re-deposited colluvial sediments. The nearest outcropping of the Ogallala Formation occurs approximately one mile north of Monument along what is known

as the Llano Estacado (caprock). The thickness of the colluvium deposits and Ogallala Formation varies locally as a result of significant paleo-topography at the top of the underlying Triassic Dockum Group. Since Cretaceous Age rocks in the region have been removed by pre-Tertiary erosion, the colluvial deposits and Ogallala Formation rest unconformably on the Triassic Dockum Group. Consequently, the top of the Dockum Group varies from approximately 14 to 34 feet below ground surface across the site. The uppermost unit of the Dockum Group is the Chinle Formation which primarily consists of micaceous red clay and shale but also contains thin interbeds of fine-grained sandstone and siltstone. The red clays and shale of the Chinle Formation act as an aquitard beneath the waterbearing colluvial deposits and therefore limit the amount of recharge to the underlying Dockum Group. The thickness of the Dockum Group is estimated at approximately 300 feet in the site area although its thickness in southern Lea County varies from 0 to 1,270 feet thick (Nicholson and Clebsch, 1961). A geologic map is provided in GCL's previous report, "Evaluation of Groundwater Contamination at the Hobbs Gas Plant and Hobbs Gas Compressor Station No. 2".

Potable groundwater used in southern Lea County is derived primarily from the Ogallala Formation (including the colluvial deposits) and the Quaternary alluvium. Lower yields have also been provided by waterbearing zones within the Triassic Dockum Group in a few scattered areas within southern Lea County. No potable water is known to be derived below the Triassic Dockum Group. Water from the Ogallala and alluvium aquifers in



southern Lea County is used for irrigation, stock, domestic, industrial, and public supply purposes.

The regional gradient of the Ogallala aquifer in the site area generally flows toward the southeast. Based on data provided by the State Engineer Office, the hydraulic gradient varies from approximately 0.002 to 0.1 feet/feet. Recharge to the Ogallala aquifer occurs primarily by infiltration of precipitation at a slow rate

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(typically one quarter to one half inch of water per year) due to the characteristically arid climate of southern Lea County (Nicholson and Clebsch, 1961). Hydraulic conductivity values are estimated between 26 and 50 feet per day and specific yields of 0.23 for the Ogallala aquifer near the site area based on limited published information (McAda, 1984); aquifer testing (pump test, slug test, etc.) would be necessary to determine actual values on site.



SECTION 3.0

3.0 Methods of Investigation

3.1 Soil Boring and Monitoring Well Locations

The objective of the placement of the soil borings and monitoring wells during this investigation was to determine the vertical and areal extent of hydrocarbonimpacted groundwater. Monitoring well locations are depicted on the site map (Figure 1). Monitoring well MW-1 is located at the suspected source area (former pipeline liquids AST and used oil UST location). Monitoring well MW-2 is located in the upgradient (northwest) direction of the source area. Monitoring wells MW-1 and MW-2 were installed by GCL in February 1994. During this investigation, MW-1D was placed immediately adjacent (approximately 8 feet north) to MW-1 to vertically define the groundwater conditions in the source area. The construction method utilized for MW-1D also allows its potential usage as an air sparging well for remedial purposes if later deemed appropriate. Monitoring well MW-3 was placed approximately 500 feet southeast of the source area to delineate the downgradient extent of the hydrocarbon-impacted groundwater. MW-4 was placed near the southeast corner of the fenced portion of the site as requested by the OCD for additional downgradient delineation. Monitoring well MW-5 was located approximately 200 feet southwest of the source area for cross-gradient delineation. Another cross-gradient monitoring well (location of soil boring SB-7) was intended to be placed approximately 300 feet east-northeast of the source area, however, no groundwater was encountered during soil sampling operations at this location, therefore, the borehole was terminated at 42 feet. The installation of a monitoring well at this

location was determined unnecessary since the presence of a subsurface groundwater barrier (Triassic Dockum Group) composed of red clay was encountered at a shallow depth (14 feet) and extended well below (beyond 42 feet) the anticipated depth of groundwater which averages approximately 23 feet across the site.

3.2 Soil Sampling Procedures

Drilling and sampling operations were conducted by Diversified Water Wells of Abilene, Texas, using an air-rotary drilling rig. After drilling to the proper depth, soil samples were collected with a split-spoon sampling tool at 5-foot intervals. Each soil sample was field-screened (headspace analysis) using a Thermal Scientific Model 580D organic vapor meter (OVM) equipped with a 10.6 eV photoionization detector (PID). Prior to use, the instrument was calibrated with 100 ppm isobutylene, which is directly proportional to benzene with respect to relative concentrations detected. Field PID measurements were used to determine the presence of actionable soils (PID reading greater than 100 ppm) as defined in the OCD "Guidelines for Remediation of Leaks, Spills and Releases" (August 13, 1993). The soil sample that registered the highest PID reading and/or samples with PID readings above 100 ppm and the sample immediately above the groundwater table were submitted to Trace Analysis, Inc. of Lubbock, Texas, to be analyzed for TPH using Environmental Protection Agency (EPA) Method 8015 (gas and diesel range) and BTEX using EPA Method 8020. Soil samples were placed in 125-milliliter (4ounce) glass jars with teflon-lined lids sealed with quality assurance/quality control (QA/QC) seals, and preserved at



4°C with zero headspace according to EPA requirements (EPA 600/4-82-029). A chain-of-custody (COC) form documenting sample identification numbers, collection times, and delivery times to the laboratory was completed for each set of samples.

3.3 Monitoring Well Construction Procedures

The monitoring wells were constructed of 4-inch diameter schedule 40 PVC well casing and 0.01-inch slotted screen, with the exception of MW-1D, which was constructed of 2-inch diameter well casing and screen. The 15 feet of well screen for the 4-inch diameter monitoring wells was placed approximately 10 feet below the water table leaving approximately 5 feet of well screen above the water table. In the 2-inch monitoring well, the 2.5 feet of well screen was placed at the bottom of the well to screen only the bottom-most portion of the aquifer. The screened portion of each monitoring well was surrounded with a filterpack that was capped with a bentonite seal. The bentonite seal for the 4-inch diameter monitoring wells varied from approximately 2 to 4 feet thick. The bentonite seal for the 2-inch diameter monitoring well was approximately 14 feet thick. The remaining annular space for each monitoring well was sealed using a grout composed of Portland cement with a 5 percent bentonite mixture, emplaced from the top of the bentonite plug to ground surface. A 4-foot by 4-foot concrete pad was constructed at the surface and the top of casing protected with a locked steel well cover. The monitoring well construction diagrams are provided in Appendix B.

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3.4 Groundwater Sampling Procedures

Each newly installed monitoring well was developed using a decontaminated submersible pump, with the exception of the 2-inch monitoring well (MW-1D), which was hand bailed to reduce the amount of fine sediments and improve well yield performance. Immediately prior to collecting groundwater samples, each of the on-site monitoring wells was purged of a minimum of three well volumes of development water using a decontaminated 2-inch diameter submersible pump. An approximate total of 250 gallons was developed and purged from the on-site monitoring wells. Field parameters, including pH, conductivity, and temperature, were measured with a Hydac Model 910 meter. Groundwater samples were obtained after field parameters stabilized during purging operations. The pumping rate of the submersible sampling pump was reduced to below 300 milliliters per minute for samples being obtained for volatile organic analysis to minimize the volatilization of organic constituents during sampling operations. The water samples were transferred into air-tight, septum-sealed 40-milliliter glass VOA sample vials with zero headspace for analysis of total BTEX, and 1-liter glass jars for analysis of polynuclear aromatic hydrocarbon (PAH), total metals, and major cations and anions analyses in accordance with EPA protocol (EPA 600/2-82-029) using EPA-approved methods (SW-846). The water samples were placed in an ice-filled cooler immediately after collection and transported to Trace Analysis, Inc. in Lubbock, Texas.



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Additional groundwater samples were collected from monitoring wells MW-1D, MW-2, and MW-5 and sent to Trace Analysis, Inc. for analysis of total aerobic heterotrophic plate count and total hydrocarbon utilizing bacteria in order to assess

the potential intrinsic bioremedial activity currently taking place. For each set of samples, COC forms documenting sample identification numbers, collection times, and delivery times to the laboratory were completed.



SECTION 4.0

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4.0 Results

4.1 Local Geology

The lithology of the subsurface soils in monitoring wells MW-1D, MW-3, MW-4, and MW-5 were similar to those described during the previous investigations (MW-1, MW-2, and SB-1 through SB-6). The subsurface soils generally consist of an upper unsaturated sandy zone 14 to 22 feet thick (colluvial deposits/Ogallala Formation). This unit was commonly calichified (indurated with cemented calcium carbonate) and moderately fractured (weathered). Beneath this unit, a saturated fine-grained sand was observed (approximately 8 to 12 feet thick). The saturated sand unit was underlain by a red clay (Upper Dockum Group). The lithology of the subsurface soils in boring SB-7, however, differed significantly from all other borings on site in that there was no saturated fine-grained sand zone encountered because the red clay was encountered at a depth shallower (14 feet) than where the on-site groundwater had been observed (approximately 23 feet). The red clay continued to the bottom of this boring (42 feet) indicating that it acts as a groundwater barrier at this portion of the site. Based on its lithology and the absence of groundwater, boring SB-7 was not completed as a monitoring well and effectively delineates the eastern extent of the hydrocarbon-impacted groundwater on site. Geologic cross sections developed from the lithologic descriptions are included in Figures 2 and 3, and depict the uneven red clay surface beneath the site. A more detailed description of the subsurface soils is provided on the lithologic logs in Appendix B.

PID readings varied from less than 1 ppm in various intervals from each of the soil borings to 490 ppm in monitoring well MW-1D. Only two sampled intervals exceeded the OCD recommended action level of 100 ppm. These were the 22 to 23foot interval of MW-1D (490 ppm) and the 24- to 25-foot interval of MW-5 (425 ppm). A complete listing of PID readings is included in the lithologic logs in Appendix B.

4.2 Soil Sample Analytical Results

Based on a Category I ranking for the site (> 19 points), only one sample exceeded the OCD recommended action level of 50 ppm for BTEX (the 22- to 23-foot sample interval of MW-1D). Two sample intervals exceeded the OCD recommended action level of 100 ppm for TPH (the 22- to 23-foot interval of MW-1D and the 24- to 25-foot interval of MW-5). Hydrocarbonimpacted soils were not observed in borings SB-7, MW-3, and MW-4, and PID measurements in these borings were less than 1 ppm throughout. Soil sample analytical results are summarized in Table 1. Laboratory analytical reports and the COC documentation is provided in Appendix C.

Based on the soil sample analytical results from this investigation and the headspace measurements taken from previous investigations by GCL and DBS&A, the hydrocarbon-impacted soil concentrations above the OCD recommended action levels for BTEX (50 ppm) and/or TPH (100 ppm) are estimated to be limited within a 120-foot radius of the former AST. Some hydrocarbon-impacted soils above the OCD recommended action levels extend beyond the near vicinity of the source areas (the 24-to 25-foot interval of MW-5, for example), however, these soils are limited to a thin zone immediately







	Table 1 Summary of Soil Sample Analytical Results for BTEX and TPH Monument Booster Station									
Monitoring Well/Boring No.	Date	Sample Interval	PID Reading (ppm)	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl- benzene (mg/kg)	Xylenes (mg/kg)	Total BTEX (mg/kg)	TPH [#] (mg/kg)	TPH ⁴ (mg/kg)
MW-1D	05-09-95	10-10.5	15	<0.01	0.018	< 0.01	< 0.01	0.018	< 10	< 20
		22-23	490	2.6	< 1	28	58	89	3,194	2,452
MW-1D (Duplicate)	05-09-95	22-23	490	<0.2	<0.2	18	62	80	6,360	5,372
MW-3	05-08-95	20-21	< 1	< 0.01	0.016	< 0.01	< 0.01	0.016	< 10	23
MW-4	05-08-95	22-22.5	< 1	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 10	< 20
MW-5	05-09-95	24-25	425	0.66	2.7	9.5	26	39	1,374	1,968
SB-7	05-08-95	15-16	< 1	< 0.01	0.024	0.011	0.031	0.066	< 10	< 20
		40-42	< 1	< 0.01	0.013	< 0.01	0.026	0.039	< 10	< 20

Analyses performed by Trace Analysis, Inc. of Lubbock, Texas. BTEX indicates benzene, toluene, ethylbenzene, and xylenes and analyzed using EPA Method 8020. BTEX values rounded to two significant figures. TPH^g indicates total petroleum hydrocarbons (gas range) and analyzed using EPA Method 8015 (purge method). TPH^d indicates total petroleum hydrocarbons (diesel range) and analyzed using EPA Method 8015 (extraction method). Values shaded indicate concentrations exceed remediation action levels as specified by the NMOCD in <u>Guidelines For Remediation of Leaks</u>, Spills and Releases (August 13, 1993) for sites with a NMOCD ranking score greater than 19 points.

SB-7 is a designated soil boring which was not converted into a monitoring well because groundwater was not encountered at its location.

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above the groundwater table and have likely adsorbed hydrocarbons that have migrated downgradient from the source area along the groundwater pathway. Offsite impact to subsurface soils is not probable.

4.3 Groundwater Gradient

The monitoring wells and soil boring locations were surveyed by John W. West Engineering of Hobbs, New Mexico using the existing grid system of the facility. Ground surface elevations and top-of-well casing elevations were determined within 0.01 feet relative to mean sea level. The survey plats prepared by John W. West Engineering Company are provided in Appendix D. The on-site monitoring wells were gauged on May 15, 1995 to determine the groundwater elevation, direction of groundwater flow, and the presence of free product (crude oil). Depth to groundwater varied from approximately 19 to 26 feet below ground surface across the site. Groundwater elevations are summarized in Table 2. Free product (crude oil) was encountered in monitoring well MW-1 with a measured thickness of 2.52 feet. A potentiometric surface map that depicts the elevation of the potentiometric surface (groundwater table) and direction of groundwater flow is illustrated in Figure 4.

The apparent direction of groundwater flow is toward the southeast with a hydraulic gradient of approximately 0.01 feet/feet. Assuming a hydraulic conductivity of 26 to 50 feet/day (McAda, 1984) and an estimated effective porosity of 0.25, the average linear velocity of groundwater flow on site varies from approximately 365 to 730 feet/year based on the version of the Darcy equation presented below:

$$v_{avg} = \frac{k \times i}{P_{\epsilon}}$$

where,

- v_{avg} = average linear velocity
- k = hydraulic conductivity
- i = hydraulic gradient
- $p_{\epsilon} = effective porosity$

$$v_{avg} = \frac{k \times i}{p_{e}} = \frac{26 \text{ feet/day } \times 0.01 \text{ feet/feet}}{0.25}$$

= 1 foot/day = 365 feet/year

$$v_{avg} = \frac{k \times i}{p_{\epsilon}} = \frac{50 \text{ feet/day } \times 0.01 \text{ feet/feet}}{0.25}$$

= 2 feet/day = 730 feet/year

4.4 Groundwater Sample Analytical Results

The analytical results from the May 16, 1995, groundwater sampling event are summarized in Tables 3 through 7. The WQCC standard is also presented in each table for comparison. Those constituents that recorded concentrations above the WQCC standards are highlighted in boldface type. The laboratory analytical reports and the COC documentation for the groundwater sampling operations are provided in Appendix C.

4.4.1 Hydrocarbon Analytical Results

The only hydrocarbon concentrations above WQCC standards occurred in monitoring wells MW-1D and MW-5. MW-1 was not analyzed for hydrocarbon compounds due to the presence of free product (crude oil). The analytical results for MW-1D and MW-5 indicate benzene



		S	Tab ummary of Grour Monument Bo	le 2 adwater Elevations poster Station		
Well	Date	Relative Ground Surface Elevations (feet)*	Relative Top of Casing Elevation (feet)*	Depth to Groundwater Below Top of Casing (feet)	Corrected Relative Groundwater Elevation (feet)**	Phase-Separated Hydrocarbon Thickness (feet)
MW-1	05-16-95	3588.85	3591.15	28.05	3565.17	2.52
MW-1D	05-16-95	3589.06	3591.31	26.04	3565.27	0.00
MW-2	05-16-95	3594.13	3596.30	29.28	3567.02	0.00
MW-3	05-16-95	3581.46	3583.86	22.72	3561.14	0.00
MW-4	05-16-95	3586.10	3588.77	26.45	3562.32	0.00
MW-5	05-16-95	3589.62	3592.16	28.10	3564.06	0.00

* Elevations surveyed by John W. West Engineering Company of Hobbs, New Mexico. The monitor well casings were marked on the north side to provide consistent reference points for future gauging operations.

** Correction Equation for Phase-Separated Hydrocarbons: Corrected Relative Groundwater Elevation = Top of Casing Elevation - [Depth to Groundwater Below Top of Casing - (SG) (PSH Thickness)]

Specific Gravity (SG) = 0.82 for crude oil. PSH indicates phase separated hydrocarbons (crude oil).



Summary of Groundwater Samplin	Analytical Re Monumen g Operations	Table 3 sults for Are the Booster St Conducted	omatic Vola ation on May 16,	tile Organic 1995	Compounds	
	Monitoring Well Numbers NMWQC					NMWQCC
Constituent	MW-1D (mg/L)	MW-2 (mg/L)	MW-3 (mg/L)	MW-4 (mg/L)	MW-5 (mg/L)	Standards (mg/L)
Benzene	0.018	<0.001	<0.001	<0.001	0.265	0.010
Toluene	0.006	<0.001	<0.001	<0.001	0.009	0.75
Ethylbenzene	0.015	<0.001	<0.001	<0.001	0.261	0.75
Xylenes (Total)	0.016	<0.001	<0.001	<0.001	0.050	0.62

Analyses performed by Trace Analysis, Inc. using EPA Method 8240.

New Mexico Water Quality Control Commission (NMWQCC) Standards are listed as specified in Regulation 3-103.

Values shaded indicate concentrations exceed NMWQCC groundwater standards.

Monitoring well MW-1 was not measured for aromatic volatile organic compounds (due to presence of free phase floating product).

Summary of Groundwa Samp	ter Analytical I Monume ling Operations	Table 4 Results for P nt Booster S S Conducted	olynuclear A tation on May 16,	Aromatic Hy 1995	drocarbons	
		Monitoring Well Numbers NMWQCC				
Constituent	MW-1D (mg/L)	MW-2 (mg/L)	MW-3 (mg/L)	MW-4 (mg/L)	MW-5 (mg/L)	Standards (mg/L)
Naphthalene	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	
Total monomethylnaphthalenes	<0.001	<0.001	<0.001	<0.001	<0.001	0.03
Benzo(a)pyrene	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	0.0007

Analyses performed by Trace Analysis, Inc. using EPA Method 8270.

New Mexico Water Quality Control Commission (NMWQCC) Standards are listed as specified in Regulation 3-103.

Monitoring well MW-1 was not measured for polynuclear aromatic hydrocarbons(due to presence of free phase floating product).

Table 5 Summary of Groundwater Analytical Results for Halogenated Volatile Organic Compounds Monument Booster Station Sampling Operations Conducted on May 16, 1995						
	Monitoring Well Numers					NMWQCC
Constituent	MW-1D (mg/L)	MW-2 (mg/L)	MW-3 (mg/L)	MW-4 (mg/L)	MW-5 (mg/L)	Standards (mg/L)
Carbon Tetrachloride	<0.001	<0.001	<0.001	<0.001	<0.001	0.01
Chloroform	<0.001	<0.001	<0.001	<0.001	<0.001	0.1
1,1-Dichloroethane	<0.001	<0.001	<0.001	<0.001	<0.001	0.025
1,2-Dichloroethane	<0.001	<0.001	<0.001	<0.001	<0.001	0.01
1,1-Dichloroethylene	<0.001	<0.001	<0.001	<0.001	<0.001	0.005
Methylene chloride	<0.005	<0.005	<0.005	<0.005	<0.005	0.1
1,1,2,2-Tetrachloroethane	<0.001	<0.001	<0.001	<0.001	<0.001	0.01
1,1,2,2-Tetrachloroethylene	<0.001	<0.001	<0.001	<0.001	<0.001	0.02
1,1,1-Trichloroethane	<0.001	<0.001	<0.001	<0.001	<0.001	0.06
1,1,2-Trichloroethane	<0.001	<0.001	<0.001	<0.001	<0.001	0.01
1,1,2-Trichloroethylene	<0.001	<0.001	<0.001	< 0.001	<0.001	0.1
Vinyl chloride	<0.001	<0.001	<0.001	<0.001	<0.001	0.0001*

Analyses performed by Trace Analysis, Inc. using EPA Methods 8240. New Mexico Water Quality Control Commission (NMWQCC) Standards are listed as specified in Regulation 3-103.

*Indicates NMWQCC standard is below method detection limit.

Monitoring well MW-1 was not measured for halogenated volatile organic compounds due to presence of free phase floating product).

Table 6 Summary of Groundwater Analytical Results for Total Metals Monument Booster Station Sampling Operations Conducted on May 16, 1995										
		M	Ionitoring V	Vell Numbe	rs		NMWQCC Standards			
Constituent	MW-1 (mg/L)	MW-1D (mg/L)	MW-2 (mg/L)	MW-3 (mg/L)	MW-4 (mg/L)	MW-5 (mg/L)	Standards (mg/L)			
Aluminum (Al)	0.55	1.34	13.10	0.88	8.04	0.24	5.0			
Arsenic (As)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1			
Barium (Ba)	0.13	0.12	0.08	0.05	0.10	0.14	1.0			
Boron (B)	0.85	0.22	0.37	0.09	0.14	0.39	0.75			
Cadmium (Cd)	0.01	<0.01	0.01	<0.01	<0.01	<0.01	0.01			
Cobalt (Co)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.05			
Copper (Cu)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	1.0			
Chromium (Cr)	0.01	<0.01	0.02	0.01	0.02	0.02	0.05			
Iron (Fe)	25.58	4.6	5.82	0.53	4.68	1.75	1.0			
Lead (Pb)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.05			
Manganese (Mn)	0.67	0.31	0.12	0.08	0.11	0.58	0.2			
Mercury (Hg)	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.002			
Molybdenum (Mo)	0.07	0.09	0.05	0.07	0.07	0.07	1.0			
Nickel (Ni)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.2			
Selenium (Se)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.05			
Silver (Ag)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.05			
Zinc (Zn)	0.03	0.06	0.05	0.04	0.05	0.04	10.0			

Analyses performed by Trace Analysis, Inc. using EPA Methods 200.7, 239.2, 270.2, and 272.2 New Mexico Water Quality Control Commission (NMWQCC) Standards are listed as specified in Regulation 3-103. Shaded values indicate concentrations exceed NMWQCC groundwater standards.

Table 7 Summary of Groundwater Analytical Results for Major Ions and Field Parameters Monument Booster Station Sampling Operations Conducted on May 16, 1995							
		N	Ionitoring V	Well Number	rs		NMWQCC
Constituent	MW-1 (mg/L)	MW-1D (mg/L)	MW-2 (mg/L)	MW-3 (mg/L)	MW-4 (mg/L)	MW-5 (mg/L)	Standards (mg/L)
Total Dissolved Solids (TDS)	NM	634	1,478	516	716	692	1,000
Calcium (Ca)	12.8	123	315	99.7	160	122	NS
Fluoride (F)	NM	1.8	1.1	1.8	1.2	1.4	1.6
Magnesium (Mg)	1.6	46.2	72.0	25.0	37.2	52.9	NS
Silica (Si)	8.7	8.0	20.0	7.9	16.5	6.8	NS
Sodium (Na)	14.5	79.1	154.5	76.1	82.5	110.7	NS
Bicarbonate (HCO ₃)	NM	333	197	166	277	532	NS
Chloride (Cl)	NM	77	812	188	152	80	250
Nitrate (NO ₃ -N)	NM	1.37	7.42	5.62	3.69	0.56	10.0
Sulfate (SO ₄)	NM	174	509	115	136	67	600
Field Parameters	-						
pH (standard units)	NM	7.90	8.22	8.27	7.88	7.72	6 - 9
Conductivity (µS/cm)	NM	1,605	3,160	1,350	1,652	1,582	NS
Temperature (°F)	NM	75.3	69.7	73.3	75.8	70.1	NS
Dissolved Oxygen (mg/L)	NM	1.05	6.48	6.85	4.85	1.10	NS

Analyses performed by Trace Analysis, Inc. using EPA Methods 160.1, 200.7, 340.2, 375.4, 353.3, 4500 C1-B, and 310.1 New Mexico Water Quality Control Commission (NMWQCC) Standards are listed as specified in Regulation 3-103. NM = Indicates parameter was not measured (due to presence of free phase floating product). NS = Indicates no standard established or applicable. Values shaded indicate concentrations exceed NMWQCC groundwater standards.

concentrations of 0.018 mg/L and 0.265 mg/L, respectively, which exceed the WQCC standard of 0.01 mg/L. The groundwater analyses indicate that the hydrocarbon concentrations in monitoring wells MW-2, MW-3, and MW-4 were below the laboratory detection limits.

The estimated extent of the hydrocarbon-impacted groundwater on site that exceeds the WQCC standards for benzene based on the May 15, 1995 sampling event is depicted in Figure 5. Based on the results of this investigation and previous investigations by GCL and DBS&A, the areal extent of hydrocarbon-impacted groundwater has been estimated as covering a triangular-shaped area that covers most of the southern half of the facility (approximately 5 acres), however, hydrocarbon-impacted groundwater is not likely to have migrated beyond the north, east, and south boundaries of the facility. Due to elevated benzene levels (0.265 mg/ L) in MW-5, we cannot conclude whether the groundwater is impacted beyond the west or southwestern property boundaries without the installation of an additional monitoring well in this area.

Based on the analytical results for monitoring MW-1D and the presence of a low permeable red clay layer at the bottom of the aquifer, the vertical extent of hydrocarbon-impacted groundwater does not extend beyond approximately 24 to 34 feet below the ground surface.

4.4.2 Inorganic Analytical Results

The inorganic chemical analyses indicate that water samples from several monitoring wells exceed the WQCC standards for various constituents, including aluminum, boron, chloride, fluoride, iron, manganese, and/or total dissolved solids. It should be noted that upgradient monitoring well MW-2 has anomalous concentrations of each of these inorganic constituents. These elevated constituents could represent natural conditions and/or off-site sources, and are not believed to be contributed from on-site operations.

Aluminum and boron do not represent a risk to human health based on WQCC classification (Section 3-103 A-C), therefore, remedial response is not deemed necessary for the relatively low concentrations of these constituents.

Fluoride concentrations are slightly elevated (approximately 10 percent above WQCC standards) in two on-site monitoring wells, however, elevated fluoride levels are a common natural occurrence in southeast New Mexico. Furthermore, fluoride is not a constituent for the natural gas production process on site, therefore, a remedial response to the fluoride levels in the groundwater is not warranted.

The elevated iron and manganese levels in the on-site monitoring wells may be partially due to the chemically reduced conditions caused by the presence of hydrocarbons in the on-site soils and groundwater, however, natural conditions and off-site sources may also be a contributing factor.

Chloride and TDS concentrations are exceeded only in monitoring well MW-2, which strongly suggests an upgradient, off-site source. Based on the extensive oil and gas production in the area, this is the most logical explanation.





4.5 Intrinsic Bioremediation Assessment

GCL performed a preliminary evaluation of hydrocarbon remediation by intrinsic bioremediation, which relies on the degradation activity of indigenous microorganisms. The evaluation of intrinsic bioremediation as a hydrocarbon removal mechanism requires evaluation of electron acceptor availability and use patterns, the enumeration of microorganisms with the capability to degrade the contaminant of concern, and the groundwater conditions that allow for electron acceptor and nutrient transport.

Electron acceptors that can be used by in situ microorganisms to achieve significant hydrocarbon degradation include oxygen, nitrogen, and sulfate, in relative order of preference. Often, more than one degradation process is operative during intrinsic bioremediation, and the key lies in determining whether or not sufficient electron acceptors are available to arrest contaminant migration and/or attain remediation.

Hydrocarbon-impacted wells (MW-1, MW-1D, and MW-5) are compared against unimpacted wells (MW-2, MW-3, and MW-4) to observe whether or not significant differences are observed in electron acceptor concentration that may be related to subsurface biodegradation. Table 7 shows significant depletions of nitrate and dissolved oxygen in hydrocarbon-impacted wells relative to wells not impacted by hydrocarbons. Sulfate concentrations are slightly depleted in MW-5 relative to other wells. The depletion of electron acceptors in wells impacted by hydrocarbons suggests that bacteria have been and are actively degrading hydrocarbons and are likely limited by the availability of the electron acceptors within the zone of hydrocarbon impact. As indicated by current water quality in downgradient wells MW-3 and MW-4, the electron acceptor concentrations may be sufficient to permit natural biodegradation to contain contaminant migration in a downgradient direction and thereby stabilize the spreading of hydrocarbons in groundwater.

Enumeration of bacterial populations (colony forming units) was also performed on hydrocarbon-impacted wells (MW-1D and MW-5) and upgradient well (MW-2) to assess whether or not hydrocarbondegrading bacteria were stimulated to grow in the presence of hydrocarbons. As summarized in Table 8, total aerobic (oxygen-utilizing) bacterial populations in hydrocarbon-impacted wells MW-1D and MW-5 are several orders of magnitude greater than bacterial populations observed for upgradient well MW-2. Likewise, hydrocarbon degraders in MW-1 were approximately three times greater in number than those detected in MW-2. Total bacterial populations greater than 10⁵ are indicators that there is significant potential for intrinsic bioremediation and/ or enhanced bioremediation.

While intrinsic bioremediation is clearly occurring and the rate at which this hydrocarbon removal process appears to be sufficient to contain the plume, additional data will be required over time to evaluate its effectiveness for in situ remediation.



Table 8 Summary of Groundwater Analytical Results for Bacterial Activity Monument Booster Station Sampling Operations Conducted on May 16, 1995								
	Monitoring Well Numbers							
Constituent	MW-1D (cfu/ml)	MW-2 (cfu/ml)	MW-5 (cfu/ml)					
Total Aerobic Bacterial Populations	900,000	34,000	1,550,000					
Total Hydrocarbon Degraders	61,000	28,000	24,500					

Total Aerobic Bacterial Populations equivalent to Total Aerobic Heterotrophic Plate Count. Total Hydrocarbon Degraders equivalent to Total Hydrocarbon Utilizing Bacteria.

Analyses performed by Trace Analysis, Inc. with assistance from the Biological Sciences Department of Texas Tech University using modified standard plate count methods (Appendix D). Units reported in colony forming units per milliliter (cfu/ml).

SECTION 5.0
Subsurface Investigation and Preliminary Remedial Response for the Monument Booster Gas Compressor Station Lea County, New Mexico

5.0 Conclusions

- Based on the analytical results from subsurface investigations conducted by DBS&A and GCL, the estimated areal extent of hydrocarbon-impacted soil above the OCD recommended action level of 50 ppm BTEX and 100 ppm TPH does not extend beyond an approximate 120 feet radius around the former AST and UST.
- The presence of 2.52 feet of free product (crude oil) in MW-1 appears to be limited to within an estimated 25 to 100 feet downgradient (southeast) of the former AST location.
- The apparent direction of groundwater flow is toward the southeast with a hydraulic gradient of approximately 0.01 feet/feet and an estimated average linear velocity of 365 to 730 feet/ year.
- The areal extent of hydrocarbonimpacted groundwater has been estimated as covering a triangularshaped area that covers most of the southern half of the facility (approximately 5 acres), however, hydrocarbon-impacted groundwater is not likely to have migrated beyond the north, east, and south boundaries of the facility.
- Based on elevated benzene levels (0.265 mg/L) in MW-5, we cannot conclude whether the groundwater is impacted beyond the west or southwestern property boundaries without the installation

of an additional monitoring well in this area.

- Based on the analytical results for monitoring well MW-1D and the presence of a low permeable red clay layer at the bottom of the aquifer, the vertical extent of hydrocarbon-impacted groundwater does not extend beyond approximately 24 to 34 feet below the ground surface.
- The inorganic chemical analyses indicate that water samples from several monitoring wells exceed the WQCC standards for various constituents, including aluminum, boron, chloride, fluoride, iron, manganese, and/or total dissolved solids. These elevated constituents could represent natural conditions and/or off-site sources and are not believed to be contributed from on-site operations.
- While intrinsic bioremediation is clearly occurring and the rate at which this hydrocarbon removal process appears to be sufficient to contain the plume, additional data will be required over time to evaluate its effectiveness for in situ remediation.
- Based upon the calculation of the average linear velocity of groundwater flow, the age of the release, and the documented extent of hydrocarbon impact, GCL concludes that natural processes (intrinsic bioremediation, adsorption, and volatilization) are effectively



Subsurface Investigation and Preliminary Remedial Response for the Monument Booster Gas Compressor Station Lea County, New Mexico

limiting the migration of dissolved-phase hydrocarbons to the on-site boundaries of the facility. Removal of the free product (crude oil) is necessary to effectively eliminate the source of hydrocarbons in the subsurface media.



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6.0 Preliminary Remedial Response

GCL believes the following remedial response initiatives should be implemented at the Monument Booster Station:

- Removal of product from monitoring well MW-1 should commence as soon as practable. GPM is currently exploring options for the most appropriate product removal techniques. A product recovery system demonstration has been scheduled prior to July 31 with an area vendor. Initial recovery operations will be conducted at that time. Subsequent recovery operations will continue at a regular frequency dependent on the results of the initial recovery operations/demonstrations.
- Installation of an additional recovery well downgradient (southeast) of MW-1 for more effective product recovery operations.

- Installation of a monitoring well near the southwest boundary of the facility to complete delineation of dissolved-phase hydrocarbons beyond those observed in monitoring well MW-5.
- Continued sampling and monitoring of the on-site monitoring wells on a quarterly frequency. The primary parameters to be monitored and sampled should include free product thicknesses, groundwater elevations, BTEX concentrations, dissolved oxygen, nitrate, and aerobic bacteria populations.
- Sampling for dissolved metals, PAHs, and major ions should be discontinued.

SECTION 7.0

Subsurface Investigation and Preliminary Remedial Response for the Monument Booster Gas Compressor Station Lea County, New Mexico

7.0 References

Barnes, Virgil E. 1976. Geologic Atlas of Texas, Hobbs Sheet, Bureau of Economic Geology, The University of Texas, Austin, Texas.

Daniel B. Stephens & Associates, Inc. 1994. Subsurface Investigation at Hobbs Compressor Station No. 2 and Hobbs Natural Gas Processing Plant (August 10, 1994), Albuquerque, New Mexico.

Geoscience Consultants, Ltd. 1994. Evaluation of Groundwater Contamination at the Hobbs Gas Plant and Hobbs Compressor Station No. 2 (March 9, 1995), Albuquerque, New Mexico.

McAda, 1984. Geohydrology of the High Plains Aquifer in Southeast New Mexico, USGS Hydrologic Investigation HA-679, United States Geological Survey. New Mexico Oil Conservation Division, 1993. Guidelines for Remediation of Leaks, Spills and Releases (August 13, 1993), Tab 7b of Environmental Regulations, State of New Mexico Energy, Minerals, and Natural Resources Department, Oil Conservation Division, Santa Fe, New Mexico.

Nicholson, Alexander, Jr., and Alfred Clebsch, Jr. 1961. Geology and Ground-Water Conditions in Southern Lea County, New Mexico, U. S. Geological Survey Ground-Water Report 6. New Mexico Bureau of Mines and Mineral Resources, Socorro, New Mexico.

U. S. Geological Survey, 1985 (provisional edition). Monument South, NM USGS 7.5-minute quadrangle map.



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APPENDIX A

Appendix A

Permitted Water Well Information

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	1997 - 19	04 12 1973 PNT IRR - 197	; -37E - 34 340 195 37E 34 0776	-64
C C	10841 L 05569 PSA	03 08 1965 LIC SRD 195	3 37E 35 4443 195 37E 35 0776	64 BETTY 9.00 173.53 0
	10842 L 07014	11 06 1972 PNT DON 195	3 38E 01 100 195 38E 01 1172	AS JACKSON LERDY 0.00 3.00 0
	19 19 19		-J6E-01 111- 195 J8E-01 3844	
	st	07 21 1983 FMT DDM 199	S 38E 01 113 19S 38E 01 0783	65 HERKANDEZ TINA 0.00 3.00 0
-	10845 L 07708	06 15 1977 FMT DDM 199	i JBE UI 120 195 JBE 01 0677	22 PUITER WILL 0.00 3.00 0
!				
•	10847 L 004/2	1951 HUG 1874 HU 201 195	, JOC VI 240 145 JAE 01 1164	00 NIWHAO WEXERIA

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APPENDIX B

Appendix B

Lithologic Logs and Well Construction Diagrams

					<u></u>					
								LOGIC	; log (Sf	Page <u>1</u> of <u>1</u>
	DCATI		MAP:	COMPRESSOR BUILDING MW-5 • 1/4 NW			FORMER ED OIL UST OCATION FELINE LIQUIDS ST LOCATION	SB−7 ⊗ 37E	SITE ID SITE C N GROUN STATE: DRILLIN DRILLIN DATE S FIELD COMME <u>NEAR</u>	E MONUMENT BOOSTER STATION LOCATION ID: MW-1D DORDINATES (ft.): D ELEVATION (ft. MSL): 3,590 NEW MEXICO COUNTY: LEA IG METHOD: AIR ROTARY IG CONTR.: DIVERSIFIED WATER WELL STARTED: 5/9/95 DATE COMPLETED: 5/10/95 REP.: GIL VAN DEVENTER NTS: STRONG HYDROCARBON ODORS AND STAINING TOP OF SATURATED ZONE OF MW-1
D			DESCIAI							
E P T	WE CON	LL NST.	LITH.	USCS	FROM	ТО		PID	READING	(LITH., USCS, GRAIN SIZE PROPORTIONS, WET COLOR, RNDG., SORT., CONSOL., DIST. FEATURES)
- <u>H</u> - - -	4,						REC			SANDY CALICHE, WHITE, TAN, ORANGE-PINK, HARD, WEATHERED AND FRACTURED (0 TO 22 FEET), DRY.
- 5					5	5.5	12	<1	ррт	
-10				CAL	10	10.5	12	15	ppm	
-20					15	15.5	12	<1	ppm	SAND GRAY-BROWN FINE GRAINED STRONG
-25			<u>, , , , , , , , , , , , , , , , , , , </u>	SM CAL SM	22	23	50	490) ppm	HYDROCARBON ODOR. SANDY CALICHE, WHITE, TAN, ORANGE-PINK. SAND, TAN, V. FINE TO FINE GRAINED, MOIST. GROUNDWATER ENCOUNTERED AT APPROXIMATELY 23.5 FEET BELOW GROUND SURFACE.
30				CL						CLAY, RED, DRY.
40										BOTTOM OF BORING AT 35 FEET.
45										
50										

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LOCATION MAP:	1000000				· · · · · · · · · · · · · · · · · · ·
1/41/4 <u>NE_</u> 1/			ала колон кол	W-3 SITE IE SITE C N GROUN STATE: DRILLIN DATE S FIELD 37E	D: <u>MONUMENT BOOSTER STATION LOCATION ID: MW-3</u> OORDINATES (ft.): D ELEVATION (ft. MSL): <u>3,590</u> <u>NEW MEXICO</u> G METHOD: <u>AIR ROTARY</u> IG CONTR.: <u>DIVERSIFIED WATER WELLS</u> STARTED: <u>5/8/95</u> DATE COMPLETED: <u>5/8/95</u> REP.: <u>GIL VAN DEVENTER</u> NTS: <u>NO HYDROCARBON ODORS OR STAINING OBSERVE</u>
LOCATION DESCRIPTI	ION: APPR	OXIMATE	LY 500	FT. DOWNGRADIEN	IT (SOUTHEAST) OF MW-1
P WELL LITH	USCS FRO	S. A TO	AMPLE	PID READING	LITHOLOGIC DESCRIPTION (LITH., USCS, GRAIN SIZE PROPORTIONS, WET COLOR RNDG SORT, CONSOL DIST, FEATURES)
	5	5.5	12	<1 ppm	SANDY CALICHE, WHITE, TAN, ORANGE-PINK, VERY HARD, WEATHERED AND FRACTURED PARTICULARLY BETWEEN SURFACE AND 12 FEET, DRY.
	10	10.5	12	<1 ppm	
	SM 20	15.5	12	<1 ppm	SAND, TAN V FINE TO FINE GRAINED, REDDISH- TAN, MOIST. GROUNDWATER ENCOUNTERED AT APPROXIMATELY 20 FEET BELOW GROUND SURFACE.
25	25	27	100	<1 ppm	CLAY, RED, DRY.
50	CL				
35					BOTTOM OF BORING AT 33 FEET.
FO-					
50					

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			LITHO	OLOGIC	; LOG (SF	PLIT SPOON)
LOCATION MAP:			7 9 94 20 90 9 9 9 9 9 9	3-7 ₩-3	SITE ID SITE CO ROUN STATE: DRILLIN DATE S FIELD	Page_1_ of _1_ : <u>MONUMENT BOOSTER STATION LOCATION ID: MW-4</u> OORDINATES (ft.): E D ELEVATION (ft. MSL): <u>3,590</u> NEW MEXICOCOUNTY: <u>LEA</u> IG METHOD: <u>AIR ROTARY</u> IG CONTR: <u>DIVERSIFIED WATER WELL</u> IG CONTR: <u>DIVERSIFIED WATER WELL</u> ITARTED: <u>5/8/95</u> DATE COMPLETED: <u>5/9/95</u> REP.: <u>GIL VAN DEVENTER</u> NTS: NO HYDROCARBON ODORS OR STAINING OBSERVE
LOCATION DESCRI	.1/4 <u>NW</u> 1/4 PTION: <u>LOCAT</u>	S <u>33</u> T ED APPF	<u>195</u> R . ROXIMAT	<u>37E</u> TELY _35	50 FT. DOW	INGRADIENT (SOUTH) OF MW-1
P WELL LITH.		SA	MPLE %			LITHOLOGIC DESCRIPTION (LITH., USCS, GRAIN SIZE PROPORTIONS, WET
н CONST. 	USCS FROM 5 CAL 10 15 20 22 SM	10 5.5 11 16 20.5 22.5	REC 12 50 50 12 12	PID <1 <1 <1 <1	ppm ppm ppm ppm	COLOR, RNDG., SORT., CONSOL., DIST. FEATURES) SANDY CALICHE, WHITE-TAN, HARD, WEATHERED AND FRACTURED (0 TO 20 FEET), DRY. SAND, TAN V, FINE TO FINE GRAINED, MOIST. GROUNDWATER ENCOUNTERED AT APPROXIMATELY 23.5 FEET BELOW GROUND SURFACE.
30 35 	CL					CLAY, RED, DRY. BOTTOM OF BORING AT 36 FEET.

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					LITHO	DLOGIC	log (si	PLIT SPOON)
LOCATION	I MAP: 1/4 <u>NE</u>	това во во ми 1/4 <u>NW</u>	исли исли		195 100 100 100 100 100 195 R	в-7 w-3 <u>37Е</u>	SITE IE SITE C N GROUN STATE: DRILLIN DRILLIN DATE S FIELD COMME	Page_1_ of _1_ p: <u>MONUMENT BOOSTER STATION LOCATION ID: MW-5</u> OORDINATES (ft.): <u>E</u> DELEVATION (ft. MSL): 3,590 <u>NEW MEXICO</u> COUNTY: <u>LEA</u> IG METHOD: <u>AIR ROTARY</u> IG CONTR.: <u>DIVERSIFIED WATER WELL</u> STARTED: <u>5/9/95</u> DATE COMPLETED: <u>5/10/95</u> REP.: <u>GIL VAN DEVENTER</u> NTS:
LOCATION	DESCRIP	TION: _	LOCATE	D APP		TELY 200	FT. SOL	ITHWEST OF MW-1
	LITH.			S/	AMPLE %			LITHOLOGIC DESCRIPTION (LITH., USCS, GRAIN SIZE PROPORTIONS, WET
		USCS	FROM	то	REC	PID R	EADING	COLOR, RNDG., SORT., CONSOL., DIST. FEATURES) SANDY CALICHE, WHITE, TAN, ORANGE-PINK HARD, WEATHERED AND FRACTURED (0 TO 24 FEET), DRY.
5			5	5.5	12	<1	ppm	
		CAL	10	10.5	12	<1	ppm	
20			20	20.5	12	<1	ppm	
25		SM	24	25	50	425	ppm	SAND, GRAY-BROWN, FINE GRAINED, STRONG HYDROCARBON ODOR, MOIST. SANDY CALICHE/SANDSTONE, TAN, ORANGE-PINK,
30		SM						HARD/FIRM, MOIST. SAND, LIGHT BROWN, FINE GRAINED, MOIST.
35		CL						CLAY, RED, DRY.
								BOITOM OF BORING AT 37 FEEL.
15- 15-								
50								

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						LITHC	DLOGIC	log (SF	PLIT SPOON)
LO	CATION	MAP:	FORMER YCOL UST- LOCATION BUILDING MW-5 @ MW-5 @	MW- ABOVEC ABOVEC		FORMER DO LUST COCATION FORMER FUNE LIQUIDS S T 195 R	SB-7 807 37E	SITE ID SITE CI N GROUN STATE: DRILLIN DRILLIN DATE S FIELD I COMME NO GF	E MONUMENT BOOSTER STATION LOCATION ID: SB-7 OORDINATES (ft.): D ELEVATION (ft. MSL): 3,590 NEW MEXICO COUNTY: LEA IG METHOD: AIR ROTARY IG CONTR.: DIVERSIFIED WATER WELL STARTED: 5/8/95 DATE COMPLETED: 5/10/95 REP.: GIL VAN DEVENTER NTS: NO HYDROCARBON ODOR OR STAINING OBSERVED ROUNDWATER ENCOUNTERED
LO	CATION	DESCRIP	TION: _	LOCATE	D APP	ROXIMA	TELY 30	0 FT. EAS	T-NORTHEAST OF MW-1
D E P T	WELL CONST.	LITH.	USCS	FROM	S/ TO	AMPLE	PID	RFADING	LITHOLOGIC DESCRIPTION (LITH., USCS, GRAIN SIZE PROPORTIONS, WET COLOR RNDG SORT CONSOL DIST FEATURES)
н 5		H H H H H H H H H H H H H H H H	CAL	5	5.5	12	<1	ppm	SANDY CALICHE, WHITE, TAN, ORANGE-PINK, HARD, WEATHERED & FRACTURED (O TO 14 FEET), DRY.
10-				10	10.5	12	<1	ppm	
15				15	16	50	<1	ppm	CLAY, RED, WITH SOME SOFT CALICHE NODULES $(0-5\%)$, DRY.
20-	4			20	22	100	<1	ppm	
25-			CL	25	27	100	<1	ppm	
30-				30	30.5	12	<1	ppm	
35-				35	37	100	<1	ppm	
40				40	42	100	<1	ppm	NO GROUNDWATER ENCOUNTERED.
45 50									BUTTOM OF BORING AT 42 FEET.









APPENDIX C

Appendix C

Laboratory Reports and Chain-of-Custody Documentation



A BDM International Company

Albuquerque
 505 Marquette NW, Ste. 1100
 Albuquerque, NM 87102
 (505) 842-0001
 FAX: (505) 842-0595

Mid Atlantic Region
 4221 Forbes Blvd., Ste. 240
 Lanham, MD 20706-4325
 (301) 459-9677
 FAX: (301) 459-3064

□ NASA-WSTF PO Drawer MM Las Cruces, NM 88004 (505) 524-5353 FAX; (505) 524-5315

Chain of Custody

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9612

Date May 9,1995 Page / Of 1 Analysis Request Trace Analysis Lab Name Aherdben Address Av BTEX Jhhock Tx 79424 2 3ase/Neu/Acid Compounds GC/MS 625/8270 X ynuclear Aromatic frocarbons 610/8310 Number of Containers Telephone 806-794-96 Total Organic Carbon (TOC) 415/9060 Sub Phenols TPH/BTEX G A S Modified 8015 D v TCLP- Vol., Semi-Vol. Herbicides, Pesticides 3.3 Volatile Compounds GC/MS 624/8240 roleum drocarbons 418.1 Aromatic Volatiles K 602/8020 601/8010 Chemical Oxygen Demand (COD) otal Organic Hali TOX) 9020 Priority Pollutant Metals (13) CAM Metals (18) TTLC/STLC Cyanide TotaVA pesticides/PCB Samplers (SIGNATURES **rcLP- Metals** Halogenated Volatiles 601/ Oil & Grease RCRA Metals(8) Phenols, S 604/8040 -lash Poin Corrosivity Reactivity Sample Number Matrix Location 58-7/15-16 31 950508 1305 Soil V 25 95.0508 1600 5A-7140-42' フと 50:1 MW-1 D/10-1051 950509 1105 501 3 20 5 MW-10(22-23 950509 1238 501 1 T V 950508 1129 MW-3(20-21 ·D 24 50% 1-750 9505081750 MW-4/22-72.5 Sai 1-78 950509 1708 MW-5/24-25 soi L 2. Relinquished By Project Information Station **Relinquished By** 1. Relinguished By 3. Sample Receipt 1000 Project Monument Booster Project Director G. Van Deven Total No. of Containers 1 (Time) Signature) 5/7/95 (Date) (Printed Nar (Time) (Signature) (Time) Deventer Chain of Custody Seals an Charge Code No. 2/10-005 (Printed Name) GCL (Printed Name) (Date) (Printed Name) (Date) Rec'd Good Condition/Cold Shipping ID. No. Conforms to Record Company) (Company) (Company) Received By Received By 2. Received By (Laboratory) Lab No. 1-11-AT I/c 35775-81 Via: (Time) (Signature) (Signature) (Time) (Signature) nel Special Instructions/Comments: Invoice to GPM (Printed Name) (Date) (Printed Name) (Date) (Printed Name) GPN Project Code LRMON-U-20-300 (Company) (Company) Laboratory

Distribution: White, Canary-Laboratory \cdot Pink, GCL G(1775

May 17, 1995 Receiving Date: 05/11/95 Sample Type: Soll Project No: LRMON-U-20-300 Project Location: Monument Booster Statio	TRACEA Lubbock, Texa A G A 3 M	NALYTICAL s 79424 NALYTICAL CL ENVIRON ttention: 06 W. Wall idland, TX TRPHC	SIS, IN 806•794•12 RESULTS F MMENTAL GII Van D I, Suite 8 X 79701	D6•794•1298 Analysis Date: 05/12/95 Sampling Date: 05/08-09/95 Sample Condition: I & C Sample Received by: YL Project Name: Monument Booster Station						
TA# Field Code	Gasoline Range (ppm)	Diesel Range (ppm)	BENZENE (ppm)	TOLŪENE (ppm)	ETHYL- BENZENE (PPM)	M, P, O XYLENE (ppm)	TOTAL BTEX (PPm)			
T35775 950508 1305 SB-7 (15-16') T35776 950509 1600 SB-7 (40-42') T357771 950509 1105 MW-1D (10-10-5') T35778 950509 1238 MW-1D (22-23') T35779 950508 1129 MW-3 (20-21') T35780 950508 1750 MW-4 (22-22.5') T35781 950509 1708 MW-5 (24-25') QC Quality Control Reporting Limit	<10 <10 2,914 <10 10 1,374 4.6	<20 <20 2,452 23 <20 1,968 112 20	\$20.010 <0.010 2.625 <0.010 <0.010 0.657 0.102	0.024 0.013 0.018 <1.000 0.016 <0.010 2.685 0.101	0.011 <0.010 <0.010 27.955 <0.010 <0.010 9.538 0.103	0.031 0.026 <0.010 58.176 <0.010 <0.010 26.546 0.311	0.066 0.039 0.018 88.756 <0.010 <0.010 39.426			
<pre>% Precisio % Extracti % Instrument Accuracy METHODS: EFA SW 846-8020; EPA Modified 8</pre>	113 99 92 015.	100 87 112	106 90 102	106 90 101	106 89 103	106 90 104				
BTEX SPIKE AND QC: Sample and Blank Spik TRPHC (Diesel Range) SPIKE AND QC: Sampl TRPHC (Gasoline Range) QC: Blank spiked Director, Dr. Blair Leftwich Director, Dr. Eruce McDonell	ed with 0.100 e and Blank sp with 5 ppm TRI	ppm each oiked with PHC GASOLI	volatile 100 ppm NE RANGE.	organics. TRPHC DIESE 5-23 Dat	EL RANGE.					

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A RDM International Company

Albuquerque
 505 Marquette NW, Ste. 1100
 Albuquerque, NM 87102
 (505) 842-0001
 FAX: (505) 842-0595

Mid Atlantic Region
 4221 Forbes Blvd., Ste. 240
 Lanham, MD 20706-4325
 (301) 459-9677
 FAX: (301) 459-3064

RECEIVED MAY 1 9 1995 D NASA-WSTF PO Drawer MM Las Cruces, NM 88004 (505) 524-5353 FAX: (505) 524-5315



Analysis Request Lab Name Trace Ana Insis Aberdeen Ave 6701 Address rPH/BTEX Modified B015 (cut) iese) Lubbock, Tx 79424 Aromatic Volatiles 602/8020 B Tex of Containers able Telephone 906-764-129 nuclear Aromatic rocarbons 610/8310 e/Neu/Acid Compou MS 625/8270 Sub Phenols Organic Carbon 1415/9060 Ş. Petroleum Hydrocarbons 418.1 tal Organic Halides DX) 9020 Hakogenated Volatikes 601/8010 Cyanide Total/Ame CLP- Vol., Semi-Verbicite Priority Pollutant Metals (13) CAM Metals (18) TTLC/STLC Chemical Oxygen Demand (COD) esticides/PCB 08/8080 Samplers (SIGNATURES) **ICLP- Metals Dil & Grease** Flash Point Corrosivity Phenols, S 604/8040 Reactivity ls(8) Number RCRA Metals(Sample Number Matrix Location 39699505091256 56:1 MW-1DUP 1. Relinguished By Project Information Station Relinquished By/, 2. Relinguished By 3 Sample Receipt 1600 Project GPM-Minument Booster, Project Director Gil Van Deventer wallett 7:00P.M Total No. of Containers 5-15-95 HELEN SHELTON 5-15-95 Gignature) Signature) (Time) Chain of Custody Seals 6:1 Von Veventer Charge Code No. LRMON - (1-20-2) (Printed Name) (Printed Name) TICHCE ATNALYSIS (Date) Rec'd Good Condition/Cold (Date) Printed Name (Date) Shipping ID. No. Conforms to Record Company) (Company) Compan Lab No. **Received By Received By** 2. Receiv .aborator 35965 Aton42\$P.M Via: (Signature) (Time) (Time) (Signature) HELEN SHELTONS-15-9 Special Instructions/Comments: Invoice GPM direct (Printed Name) TRACE (Printed Name) Date) (Date) (Date) ANALYSL (Company) (Company) Laboratory

Distribution: White, Canary-Laboratory • Pink, GCL

														Í				l		RE	C	ETVE	ED	MAY	2	4 1!	×× 995
GCL	Albuquerqu 505 Marquette Albuquerque, 1 (505) 842-000 FAX: (505) 842	e NW, Ste. 1100 NM 87102 1 2-0595	 Mid 4221 Lanha (301) FAX: (d Atlantic Forbes B am, MD 2 459-967 (301) 459	Region Ilvd., Sta 20706-4 7 9-3064	- <i>D</i> a. 240 325		2 /	D NAS PO Dra Las Cri 505) 5 FAX: (5	SA-WS awer M uces, N 24-53(505) 52	TF M IM 880 33 24-5315	004 5		. •				C	Ch	a	in	0	N f (lº Cu	ist	61: O(3 Jy
	· · · · · · · · · · · · · · · · · · ·				······			4	<u> </u>					_			Da	te_5	5-1	6-4	75	F	age_	1	0	<u>'</u>	
Lab Name Trace	Analy.	sis						K	<u> </u>	_ 		/	Analy	ysis	Rec	lues	t 							<u>ج</u>	a L	i lizz	
Address 6701 1 Lubbo	10erdee ck, Tx 378-17	79424 296	2	anels First		natic 10/8310	ods Semocratic		lides		1.0	h-Vol.	icides				ديواند م تراسخ ن	lexisters	-		menable	5	×+F+5	As, B,E	No Ni I	Na Cal	ntainers
Samplers (SIGNATURES)	Matrix	Location	falogenated /olatiles 601/80	Aromatic Volatile 302/8020 Phenols, Sub Pf 304/8040	Pesticides/PCB	olynuclear Arol lydrocarbons 6	/olatile Compou SC/MS 62 (824)	SCMS 629827	TOC) 415/9060 Total Organic Hi	TOX) 9020 ⁵ etroleum	PH/BTEX Modified 8015	ICLP- Vol., Sen	Herbicides, Pest ICLP- Metals	RCRA Metals(8)	Priority Pollutant Metals (13)	CAM Metals (18		Personity of	Reactivity	Oil & Grease	Cyanide Total/A	Chemical Oxyge Demand (COD)	Major io	A9, A1,	Ha, Mn.	56,20	Number of Co
9505161115	Hat	MW-4	0.	3	6320	2		J					<u></u>					-				1	J	7	7		6
9505161300	HaO	M11-3			2		X)	X															X	\mathbb{X}	X	X	6
9505161335	1420	MW-1			2	2																		\times	X	\times	1
9505161340	1120	MW-ID			2	3	$\langle \rangle$	\langle									X	Х					>	\aleph	\boldsymbol{X}	\mathbf{X}	Za
9505161350	1120	MW-ID			2	7	X						+													;	3
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Project Information	Station	Sample Rec	ceipt	173		401511		Q/	ĺ.,		1200		ieniqi	uisiie	u Dy					2. (1 10	sinqu	131160	Ъy				
Project Director	Deronter Cl	hain of Custody Seals		Y	(Signat	ure)		S.I.	4	 ,	(Tim	e) (Signatur	e)		/			(Tim	ne) (Si	gnature	ə)		/		(1	(ime)
Charge Code No. L & MON	-U-20- Re	ec'd Good Condition/C	Cold	Y	(Printe	I Name	e)	~~	2247		(Date	e) (I	Printed I	Vame)	/				(Dat	te) (Pr	inted N	lame)	/			([Jate)
Shipping ID. No.	300 00	onforms to Record		14	Comp	апу)						(Compan	y)							mpany	0	<u> </u>				
532820776	5 ^{La}	ab No. $\gamma / \gamma \gamma = \cdot$			Hece	ivea i	ву					T	receiv	ed Bj	/					2.186		ed By	(Labo	orator	Y).	6	3.
Via: Fed. EX		56520-	<u> </u>		(Signat	ure)			/		(Time	e) (S	Signatur	e)		<u></u>	· · · 		(Tim	e) (Si	anoture	2		l.	·), ,	. 8	(ime)
Special Instructions/Comme	ents: In voic	e GPM dire	ict.		(Printe	l Name		_			(Date	9) (F	Printed N	lame)	<u> </u>				(Dat	e) (P <u>r</u>	p -	lame)	A	<u>, , , , , , , , , , , , , , , , , , , </u>	1010	<u>۶۴ "</u> ۴ ر	Jate)
8270 (total nap	hthalenes	+ nono methy	napl	that	(Comp	ary)						((Compan	y)						(La	borato	re N)	<u>n</u> r	ay	5.5	5-7	
and benzo to	a) pyrend	e >			nes							M	onu	mer	,ł	Bo	ost	Dis Ev	tribut	ion: S-1	White G	, Can	ary-L	abora	itory •	Pink, (3CL

Lubbock, Texas 79424	RECEIV	ed jun 1 9 1995		
■ 806 • 794 • 1296 FAX 806 • 794 • 1298				
	ANALYTICAL RESULTS FO	R		
	Attention: Annette A 505 Marquette NW, Sul Albuquerque NM 871(te 1300		
June 13, 1995 Beceiving Date: 05/20/95		Prep I Analys Sampli	Date: 06/08/95 is Date: 06/08/95 ng Date: 05/16/95	
Sample Type: Water GPM Charge Code No: LRMON	-u-20-300	Sample	Condition: Intact Received by: BL	& Cool
Project Location: Monumen COC #9613	t Booster Station	Projec	t Name: Monument	
T **	FIELD CODE		TDS (mg/L)	
T36320 T36321	9505161115 MW-4 9505161300 MW-3		716 516	
	A202101340 WM-1D		634	
RPD			2	
METHODS: EPA 160.1.				
				appreciation in which and the second se
1	BZ	6-13-95		
Director, Dr. 1	Blair Leftwich	DATE		1
	TRACEANATA	STS TROUM		
	aboratory for Advanced Environme	ntal Research and Analysis	HURSEN BULLINGE	

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6701 Aberdeen Avenue Lubbock, Texas 79424

806•794•1296

FAX 806 • 794 • 1298

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 Iay 31, 1995

 Receiving Date: 05/20/95

 Sample Type: Water

 Sample Code No: LRMON-U-20-300

 Project Location: Monument Booster Station

 COC# 9613

TA#	FLUORIDE CHLORIDE FIELD CODE (mg/L) (mg/L)	SO4 (mg/L)	NO3-N (mg/L)	as CaCO3 (mg/L)	as CaCO3 (mg/L)
136320	9505161115 MW-4 1.2 152	136	3.69	0	277
T36321	9505161300 MW-3 1.8	115	5.62	0	166
:36323	9505161340 MW-1D 1.8 77	174	1.37	0	333
c	Quality Control 1.0 499	9	•		

		· · · · ·	· .		· · · · ·				
	Precision		1	L	0	6	. 0	4 '	-4
\$	Extraction	Accuracy	10	0 0	98	98	106		
Ê	Instrument	Accuracy	10)2	100	90	100		
									میٹر آو ہی ہے۔ مصرفی میں اور
R	EPORTING LI	MIT		1		1.0.1 	0 1		

METHODS: EPA 340.2, 375.4, 353.3, 4500 C1-B, 310.1.

HLORIDE SPIKE AND QC: Sample spiked with 500 mg/L CHLORIDE and Blank spiked with 500 mg/L CHLORIDE.

SO4 SPIKE AND QC: Sample spiked with 10 mg/L SO4 and Blank spiked with 10 mg/L SO4.

LUORIDE SPIKE AND QC: Sample spiked with 0.5 mg/L FLUORIDE and Blank spiked with 1.0 mg/L FLUORIDE.

NO3-N SPIKE AND QC: Sample spiked with 1.33 mg/LIN03-N and Blank spiked with 1.0 mg/L NO3-N.

UTRACE ANALYSIS, INC.

A Laboratory for Advanced Environmental Res

Director, Dr. Blair Leftwich

Director, Dr. Bruce McDonell

5-31-95

DATE

D/UI ADEra	een Avenue	Lubbo	ck, Texas 7942	24 801 S FOR	6•794•1296 _.	FAX	806•794• Prep D	1298 ate: 0!	5/25/95	is gente la parates 1015: Internet la companya 2016: Internet la companya	27 - 17 - 17 - 17 - 17 - 17 - 17 - 17 -
May 31, 1995	ا معنی کی کی کرد ہے۔ ایک محمد کی کی کی ایک کی ایک کی ک	GCL	tin a star				Analys	is Date	05/25	/95	
Receiving Date: 05/20/95	en e	Attentio	n: Annet	te Monto Suite 1	ya 100		Sampli Sample	ng Date Condit:	: 05/16 Lon: In	/95 tact & C	:001"
Charge Code No: LRMON-U-20-300	ار ماید او گینجان بر به مرد ا است برای مرد می از مرد است است بر مرد می مرد از می می از م	Albuquer	que, NM	87102			Sample	Receive	ed by:	BL	
Project Location: Monument Boost	ter Stati	on	مار کرد. بر محمد این		ang	a and a second	Projec	t Name:	Monume	nt Boost	er
COC #9613.	a far a far tan an a		na an a	TOTAL MET	'ALS	Constants and Anna Constants Anna Anna Anna A	ومی و میلید. به مورد ترکی پیده و ایک میلید و ایک	and Andrew Alternation and a state	e angele en	Station	
na n	As	Se	Cr	Cđ	Pb	Ag	Ba	Na	A1	В	Mg /ma/t \
TA ≠ FIELD CODE	(mg/L)	(mg/r)	(mg/L)	(mg/L)	(mg\r)	(mg\r)	(шд\т)	(mg/u)	(ma/r)	(шуул)	(шу/ш)
T36320 9505161115 MW-4	<0.1	<0.2	0.02	<0.01	<0.1	<0.01	0.10	82.5	8.04	0.14	37.2
QC Quality Control	4.6	5.1	4.8	4.7	4.7	4.2	4.7	9.3	4.8	4.8	5.1
		n 2	0 01	0 01	0 1	0 01	0 05	0.10	0.05	0.05	0.1
	U • L	······································	.0.01								
PD	. 3	3	2	2	3	Ģ	-3	0	4	10	1
Extraction Accuracy	78	78	80	79	88	100	88	113	90	5, 90 05	87
t Instrument Accuracy	92 - 192 1993 - 1995 - 1995 1995 - 1995 - 1995 - 1995	102	96	94	.94	84	94	93	95	30	102 : بني مي الم
	د. مارید بر میرد این مربع در Ca	Мо	Zn	Ni	Fe	Со	Mn	Cu	Si	. 🛓 Hg	ې د د د د د د د د د د د د د د د د د د د
	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	
T36320 9505161115 MW-4	160	0.07	0.05	<0.05	4.68	<0.05	0.11	<0.05	16.5	<0.001	ا بې د بې د بې د بې د د د بې بې د بې د مونېت ، سره . د مسلمانې د بې د مور . د به
2C Quality Control	10.4	5.2	5.3	5.3	5.2	5.1	5.1	4.0	. 2.3	0.0049	
REPORTING LIMIT.	.0.05	0.05	0.01	0.05	0.05	0.05	0.05	0.05	0.1	0.001	
	inner 17 alsalfasion anner an thalasa	1		۰. معنی از ۲۰ را از ۲۰			میں ہے۔ اس میں اس میں ایک ا اس میں اس میں ایک ایک ا	امه ویکی و کارمان که و مانورون و کار کاری میشود و معدود . میلود و در میشود و .		and between a start of a sufficient for the start of a start of a sufficient for the start of a start start of a start of a st start of a start of a st start of a start of a st	
RPD	0	2	2	3	2	3	2	2	12	0	en engeniseren engenise openiseren engeniseren openiseren engeniseren engeniseren engeniseren engeniseren engeniseren engeniseren engen
Extraction Accuracy	82	89	90	105	90 104	103 9T	103	80	94 94	30.50 17 19 08	
S Instrument, Accuracy	104	104	TOO	105	104	103	103	2. 2 . 1997 1997 - 1997 1997 - 1997 - 1997	74		
METHODS: EPA SW 846-3015, 6010,	7470.	ر در اروعه دهمی مرد. به روم جنبی در مرد	an a		· · .			n ang tang tang tang tang tang Tang tang tang tang tang tang Tang tang tang tang tang tang tang tang t	مېنې دي. د مېنې د د د د د د د د د د د د د د د د د د	i de la companya de La companya de la comp La companya de la com	าร์ เป็นสูงให้ได้ให้ ค่า สาราช สูงให้เป็น เสียงเรื่องเป็น
QC: Blank Spiked with 5.0 mg/L	As, Se, Cr	, Cd, Pb	, A; Ba,	Al, B, Mg	g, Mo, Zn	, Ni, Fe	, Co, M	n, Cu;		and the second sec	a an
10:0 mg/L NA; Ca; 2.5 mg/L S	1; 0.005	mg/L Hg.	\sim	•					가지 말을 가지요. 21년 <u>말</u> 을 가지요. 21년 <u>말</u> 을 가지요.		
	a Visini Angelari Angelari		B-S-	•			5	31-9	5	لارام برج التروية ميليدية (). المروية معاد المروية () م	1
	and a first of the Deal Counter of	1									

6701 Abe Av.31,1995 Receiving Date: 05/20/95 Sample Type: Water Charge Code No: LRMON-U-20-300 Project Location: Monument Boo DC.49613	ordeen Avenue Static Ster Static	Lubboc ANALYTIC GCL Attentio 505 Marg Albuquero on	k Texas 794 AL RESUL n: Annet uette NW que, NM	24 806 IS FOR tte Montoy , Suite 11 87102 TOTAL MET	•794•1296 a .00	FAX	806•794• Prep D Analys Sampli Sample Sample Projec	1298 ate: 0 is Date ng Date Condit Receiv t Name:	5/25/95 : 05/25 : 05/16 ion: In ed by: Monume	/95 /95 táct & C BL nt Boost Station	ool
A# C FIELD CODE	As (ng/l)	Se (mg/L)	Cr (mg/L)	Cđ (mg/L)	Pb (mg/L)	Ag (mg/L)	Ba (mg/L)	Na (mg/L)	Al (mg/L)	.B (mg/L)	Mg (mg/L)
136321	<0.1 4.6	<0.2 5.1	0.01	<0.01 4.7	<0.1 4.7	<0.01 4.2	0.05	76.1 9.1	0.88 4.8	0.09	25.0 4.8
EPORTING LIMIT	0.1	0.2	0.01	0.01	0.1	0.01	0-05	0.10	.0.05	0.05	0.1
Extraction Accuracy Therrument Accuracy	3 78 , <u>9</u> 2	78 102	80 96	79 94	88 94	100 84	88 94	97 91	90 95	90 95	87 96
	(mg/L)	Mo (mg/L)	Zn (mg/L)	Ni (mg/L)	Fe' (mg/L)	Co (mg/L)	Mn (mg/L)	Cu (mg/L)	Si (mg/L) 7 9	Hg (mg/L)	
C Quality Control	10.1 10.1	5.2	5.3	5.3	5.2	5.1	5.1	4.8 0 05	2.3	0.00487	
	1	2	2	3	2	3	2	2	12	2	
Extraction Accuracy Linstrument Accuracy METHODS: EPA SW 846-3015, 601(101 2; 7470;	89 104	90	105	90 104	91 103	103	97	94	97 97	
C: Blank Spiked with 5.0 mg/1	L As,Se, Cr Si, 0.005 i	, Cd, Pb, ng/L Hg.	, A, Ba, R	Al, B, Mg	, Mo, Zn	, Ni, Fe	, Co, M	n, Cu;	1 61		

May 31, 1995 Receiving Date: 05/20/95 Sample Type: Water Charge Code No: LRMON-U-20-30 Project Location: Monument Bo COC #9613)0 Doster Stat	ANALYTIC GCL Attentic 505 Marg Albuquer ion	OCK Jexas 79 CAL RESUI Dh: Anne Juette NW Que, NM	424 LTS FOR Ptte Mont 7, Suite 87102 TOTAL ME	AX 806•794•1298 Prep Date: 05/25/95 Analysis Date: 05/25/95 Sampling Date: 05/16/95 Sample Condition: Intact & Cool Sample Received by: BL Project Name: Monument Poccet									
TA# FIELD CODE 136322 9505161335 MW-1	As (mg/L)	Se (mg/L)	Cr (mg/L)	Cd (mg/L)	Pb (mg/L)	Ag (mg/L)	Ba (mg/L)	Na (mg/L)	Al (mg/L)	Station B (mg/L)	Mg (mg/t			
2C Quality Control	<0.1 4.5	<0.2 5.1	0.01 4.8	0.01 4.7	<0.1 4.7	<0.01	0.13	14.5	0.55	0.85	1.6			
CPORTING LIMIT	0.1	0.2	0.01	0.01	0.1	0.01	0.05	9.1 0.10	5.0 0.05	4.9	4.8			
Extraction Accuracy	3 L 78	3 78	2	2	3,	•0	3	0		0.05	.0*1			
	92	+102	96	79 94	88 94	100 84	88 94	97 91	90 100	- 90 98	1 87			
36322 9505161335 Ma-1	Ca (mg/L)	Mo (mg/L)	Zn (mg/L)	Ni (mg/T.)	Fe	Со	Mn	Cu	Si	Ha				
Quality Control	12.8 10.1	0.07	0.03	<0.05	25.58	<u>(mg/L)</u> <0.05	<u>(mg/L)</u> 0.67	(mg/L) <0.05	(mg/L)	<u>(mg/L)</u>				
PORTINGICIMIT	0.05	0.05	0.01	0.05	5.2 0.05	5.1 0.05	5.1	4.8	2.3 0	.00487	in an			
D. Extraction Accuracy	1	2	2	3	2		0.05	0.05	0.1	0.001				
Instrument Accuracy	89 101	89 104	90 106	86 105	90 104	3 91	2 88	2 80	1 94	2	مار به المراجع br>المراجع المراجع br>مراجع المراجع ال			
THODS: EPA SW 846-3015, 6010, Blank Spiked with 5.0 mg/L	7470.	1999 - 1999 -	ам (ак карала) - ма И (Хар Марала) Торана - Пария (С. 14			103	103	97	94	97	1999 - 1997 - 1997 - 1999 - 1999 1999 - 1997 - 1999 - 1999 1999 - 1997 - 1999 - 1999 1999 - 1999 - 1999 - 1999 1999 - 1999 - 1999 - 1999 - 1999 - 1999 1999 - 1999 - 1999 - 1999 - 1999 - 1999 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 1999 - 1990 - 1990			
10:0 mg/L Na, Ca; 2.5 mg/L S	1, 0:005 mg	Ca, Pb, A /L Hg.	Ba, Al	, B, Mg,	Mo, Zn,	N1, Fe,	Co, Mn,	······································	۲۵ ۲۰۰۵ ۲۰۰۵ ۲۰۰۵ ۲۰۰۵ ۲۰۰۵ ۲۰۰۵ ۲۰۰۵ ۲۰	California (California) Maria (California) Maria (California) Maria (California) Maria (California) Maria (California)				
[40] M. Sangara, S. S. Sangara, S Sangara, S. Sangara, S. Sang Sangara, S. Sangara, S. Sang Sangara, S. Sangara, Sangara, S. Sangara, S. Sangara, S. Sangara, S. Sangara, S. Sangara, Sangara, S. Sangara, S. Sangara, S. Sangara, S Sangara, Sangara, Sa			P-S			la satu padi si si Satu satu satu	KUZ	7-90	۱۹۹۹ - ۲۰۰۹ و کمبر ۱۹۹۵ ۱۹۹۹ - ۲۰۰۹ - ۲۰۰۹ مست	and a second br>The second se The second se	artan initia Uteraria Uteraria			

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6701 Aberdeen Avenue Lubbock, Texas 79424 806 • 794 • 1296 FAX 806 • 794 • 1298

ANALYTICAL RESULTS FOR GCL Attention: Annette Montoya 505 Marquette NW, Suite 1100 Albuquerque, NM 87102

T36323

May 31, 1995 Receiving Date: 05/20/95 Sampling Date: 05/16/95 Sample Type: Water Sample Condition: Infact & Cool

Sample Received by: BL

Project Name: Monument Booster Sta: Project Location: Monument Booster COC# 9613 Station Extraction Date: 05/25/95

PAH's	Reporting	9505161340			Analysis Date: 0	5/25/95
EPA 8270 (mg/L)	Limit	MW-1D	QC	RPD	%EA	%IA
Naphthalene	0.0004	ND	49,7		an a	99
Acenaphthylene	0.0004	ND	47.9			96
Acenaphthene	0.0004	ND	47.5	0	90	95
Fluorene	0.0004	ND	46.8			94
Phenanthrene	0.0004	ND	47.1			94
Anthracene	0.0004	ND -	46.8			94
Fluoranthene	0.0004	ND	45.7			91
Pyrene	0.0004	ND	52.4	1	105	105
Benzo[a]anthracene	0.0004	ND	48.8			98
Chrysene	0.0004	ND	49.4			99
Benzo[b]fluoranthene	0.0004	ND	49.6		•. •.	99
Benzo[k]fluoranthene	0.0004	ND	46.5		•	93
Benzo[a]pyrene	0.0004	ND	49.2		-	98
Indeno[1,2,3-cd]pyrene	0.0004	ND	49.2		· . · ·	96
Dibenz[a,h]anthracene	0.0004	ND	49.0			98
Benzo[g,h,i]perylene	0.0004	ND	53.7			107

ND = Not Detected

	en en estre sin en estre sin hine	이 관련하는 것이 가지 않는 것이 있었다.	
지방 [이 그는 도 이상님 소전 2] 그는 것이 전문 귀엽 귀엽 것이 있는 것이다.	% RECOVERY		
アンドイト ちょうしん ひかく しんきょう みた 経営金 システィント		사이 사람은 승규를 잘 가지 않는 것 같아요. 이 것	
2-Fluorophenol SURR	45		
ここれ きんがっ いちがく ぎっとき 吉美 御田子子名 (美) (1997) アンコ	무료 가슴가 물 가운데 정말하는 것		
Phenol-d6 SURR	25		
·····································			
Nitrobenzene-d5 SURR	55 5 5		n an
	영화가에 유민님이 이 것 같아요.	「「「「「「「「「」」」」「「「」」」」」「「」」」」」「「」」」」」	이 이 이번 병원을 받는 것이 같다.
2-Fluorobiphenyl SURR	₩ 17 1 (● ● ●		
		化苯基苯基苯基 医淋病病 医子子	
2,4,6-Tribromophenol SURR	59		
2. 19 · 19 · 19 · 12 · 18 · 18 · 18 · 19 · 18 · 18 · 18 · 18			
Terphenyl-d14 SURR	126		

METHODS: EPA SW 846-3510; EPA 8270.

Director, Dr. Blair Leftwich Director, Dr. Bruce McDonell

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ANALYTICAL RESULTS FOR GCL Attention: Annette Montoya

FIELD CODE

505 Marquette NW, Suite 1300 Albuquerque, NM 87102

June 13, 1995 Receiving Date: 05/20/95 Sample Type: Water GPM Charge Code No: LRMON-U-20-300 Project Location: Monument Booster Station COC #9613 Extraction Date: 05/23/95 Analysis Date: 05/23/95 Sampling Date: 05/16/95 Sample Condition: Intact & Cool Sample Received by: BL Project Name: Monument Booster Station

2-methylnaphthalene/ 1-methylnaphthalene (mg/I.)

0.001

0

90

98

		(· .
T36320	 9505161115 MW-4	ND	•••
T36321	9505161300 MW-3	ND	
T36323	 9505161340 MW-1D	ND	•
QC	Quality Control	49.2	

Reporting Limit

RPD:

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% Extraction Accuracy % Instrument Accuracy

ND = Not Detected

And the

METHODS: EPA SW 846-8270, 3510.

6-13-95 DATE

Director, Dr. Blair Leftwich Director, Dr. Bruce McDonell

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A Laboratory for Advanced Environmental Research and Analy

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GCL Albuquerque Environmental Science and Engineering S05 Marquette NW, Ste. 1100 ABDM International Company Albuquerque, NM: 87102 FAX: (505) 842-0001 FAX: (505) 842-0595			C N 422 Lan FAX	Mid Atlantic Region 4221 Forbes Blvd., Ste. 240 Lantan, MD. 20706-4325 reg 1) 459-9677 FAX: (301) 459-3064					 NASA-WSTF PO Drawer MM Las Cruces, NM 88004 (505) 524-5353 FAX: (505) 524-5315 				Ť.					Chain of					f (Custody				
				··															Da	ate	5-1	6 -	95	• F	Page_		_0f_	
ab Name TRACE	ANALYSI	S	-				Pt.							Ar	naly	sis	Rec	ques	st									
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	Duraya	Selder	ogenate atiles 6	matic V /8020	nols, S /8040	tjcides/ 08080	Irocarb	MS 62	MS 62	al Orga CC) 415	al Orga X) 902	roleum	HVBTE) dified 8	LP- Vol bicides	P- Mei	RA tals(8)	日間	M Meta C/STL	sh Poin	rosivity	activity	& Grea	anide T	emical mand (Sack	Jahler		mber of
Sample Number	Matrix	Kocation	C H V H	₽ 8 8 8	604 604	Pes 608	δŦ,	<u>5</u> 8	8 S	<u>a</u> e	Ĕ٤	đ Ť	₽ŝ	Her	9	Ne No		₹Ę	Fla	Ŝ	Å.	ö	ð	58		=		<u>z</u>
9505161440	HOO	MW-5						X	X		_iq.	rest	iga	five			X					ļ			X	X		JŽ
1505161520	Hao	Mwrð						X 	X		ni_	ves	fige	itive	2		\times											(7
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Project Information		Sample R				5	, 78.44	ک ,	10.4	) 		12	no				,								-,		/	
roject Director 16. 0.	+	Chain of Custody Sea	s			(Signa	ture)	. <		- <del>-</del>			(Time	) Sig	nature	)		/			(Tin	ne) (Si	ignatur	e)		(Ti		(Time
harge Code No. 3100	SS SS	Rec'd Good Condition/	Cold	-		(Printe	d Nam	<u>()</u> 9)	<u></u>	<u>•• y</u>		<u> </u>	(Date)	) (Prli	nted Na	ame					(Da	te) (Pr	rinted N	Vame)				(Date)
hipping ID. No.		Conforms to Record				Comp	CL any)	-						ico	mpany)	)						- G	ompan	x)				
532830776	5	Lab No.				Rece	lived	By					7.	Re	ceive	d By				/	/	2. R	ecelv	ed By	(Lab	oratory)		3.
Fal-Ex	nto: Tak	Mahlet A	<u> </u>		0.	(Signa	ture)				_		(Time	) (Sig	nature	)	_	/			(Tin	ne) (Si	ignatur	8)				(Time
Ed, Cr, Co, Cu,	Fc, He	g. MN, Mo, Ni	PPP	, D, E	29	(Printe	d Nam	<b>B</b>	<u> </u>				(Date)	) (Prir	nted Na	amel					(Da	te) (Pi	rinted N	Name)				(Date
ZN,		· · · · · · · · · · · · · · · · · · ·				Comp	any)							Tice.	mpany)	)						(L	aborato	ity)				

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6701 Aberdeen Avenue						
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EAX 806 • 704 • 1200						
144 000 - / 34 - 1290	ANALYTICAL	RESULTS FOR		TAN IN A PAR		
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	Attention:	Annette Mor	toya			() (明일)
	Albuquerqu	e, NM 87102				
					11日 日本 11日 11日	
June 01, 1995 Receiving Date: 05/20/95			Analysis	Date: 05	/20/95	
Sample Type: Water			Sample Co	ndition:	LO/95 L & C	
GPM Charge Code No: LRMON-I	J-20-300		Sample Re	ceived by:	BL	
Project Location: Monument			Project N	lame: GPM		And
			COC# 9764			
した。「ここでは多人民族都知道了るなどのの年間間を設定し した。「あたい民族の教授者」でした。今日の10日の日本の日本の日本の日本の日本の日本の日本の日本の日本の日本の日本の日本の日本	FLUORIDE	CHLORIDE	<b>S</b> 04	NO3-N	AR CaCO3	AB CACO3
FIELD CODE	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
					· · · · · ·	
T36318 9505161440 MW-5	1.4	80	67	0.56	0.	532

T36318 9505161440 MW-5	1.4	80 67	0.56	0.	532
T36319 9505161520 MW-2	1.1	812 509	7.42	0	197
QC Quality Control	1.0	499 9	1.00		
				· · · ·	

	at which a set of				
RPD	1	0	6 0	4	4
<pre>% Extraction Accuracy</pre>	100	96	98 106		· · · · · · · · · · · · · · · · · · ·
& Instrument Accuracy	102	100	90 100		
	동안동이 가지 못할				
		· 建装置 化合理器 化合理			
REPORTING LIMIT	0.1	1.0	1.0	<b>1</b>	

METHODS: EPA 340.2, 375.4, 353.3, 130.2, 4500 C1-B, CHLORIDE SPIKE AND QC: Sample spiked with 500 mg/L CHLORIDE and Blank spiked with 500 mg/L CHLORIDE.

Blank spiked with 500 mg/L CHLORIDE. S04 SPIKE AND QC: Sample spiked with 10 mg/L S04 and Blank spiked with 10 mg/L S04. FLUORIDE SPIKE AND QC: Sample spiked with 0.1 mg/L FLUORIDE and Blank spiked with 1.0 mg/L FLUORIDE.

NO3 SPIKE AND QC: Sample spiked with 1.33 mg/L NO3 and Blank spiked with 1.0 mg/L NO3.

6-1-95

DATE

Director, Dr. Blair Leftwich

A Laboratory for Advanced Environmental Research and Analysi

June 01, 1995 Receiving Date: 05/20/95 Sample Type: Water GPM Charge Code No: LRMC Project Location: Monume	0N-U-20-300 ent	ANALYTIC GCL Attentio 505 Marg Albuquer	k, lexas /94/ AL RESULI n: Annet uette NW, que, NM	24 80 IS FOR tte Monto , Suite 1 87102	6•794•1296 ya 100	FAX	806•794• Prep D Analys Sampli Sample Sample Projec	1298 ate: 0 is Date ng Date Condit Receiv t Name:	5/22/95 : 05/23 : 05/16 ion: In ed by: GPM	/95 /95 tact & ( BL	2001
COC #9764	tine and the second br>Second second br>Second second	415 1	de analysis and a general and a metri stratt	TOTAL MEI	ALS		ه که اس به میتونید و در موجوع ماین میتونید . این محمد است. در است.	2	angen son an an an Salan an an an an an an Salan an an an an an an an an an Salan an		
TA# TIELD: CODE	As (mg/L)	Se (mg/L)	Cr (mg/L)	Cđ (mg/L)	Pb (mg/L)	Ag (mg/L)	Ba (mg/L)	Na (mg/L)	Al (mg/L)	(mg/L)	Mg (mg/L
T36318     9505161440 MW-5       QC     Quality Control	<0.1 4.6	<0.2 5.1	0.02	<0.01 4.7	<0.1 4.7	<0.01 4.2	0.14 4.7	110.7 9.27	0.24	0.39 4.76	52.9 5.1
REPORTING LIMIT	0.1	0.2	0.01	0.01	0.1	.0.01	0.05	0.10	0.05	0.05	0:1
Extraction Accuracy	, 78 92	78 102	80 96	2 79 94	88 94	-100 84	88 94	113 93	90 95	90 95	-87 102
	Ca (mg/Ta)	Mo (mg/L)	Zn (mg/L)	Ni (mg/I)	Fe (mg/L)	Co (mg/L)	Mn (mg/L)	Cu (mg/L)	Si (mg/L)	Hg (mg/L)	
T36318 9505161440 MW-5 QC Quality Control	122 10.4	0.07 5.19	0.04 5.29	<0.05 5.26	1.75 5.22	<0.05 5,13	0.58 5.14	<0.05 4.84	6.8 2.50	<0.001 0.0049	
REPORTING LIMIT	0.05	0.05	0.01	0.05	0.05	0.05	0.05	0.05	0.1	0.001	in the second
RPD SExtraction Accuracy	0 82 104	2 89 104	2 90 106	3 86 105	2 90 104	3 91 13	2 88 103	2 80 97	2 94 94	0 96 98	
METHODS: EPA SW 846-3015	5, 6010, 7470. 0 mg/1 As Se Cr	104 Cd. Ph	. A: Ba	105 Al. B. Mr	104 1. Mo. 2n	. Ni. Fe	. Co. M	n. Cut			
10.0 mg/L Na, Ca; 2.5	5 mg/I Si; 0.005	mg/L Hg.	B	5	,,, <b>.</b>		6		Fisher	مریک میکند. میکنی میکنی میکنی میکنی میکنی میکنی میکنی میکنی میکنی میکنی میکنی میکنی میکنی میکنی میکنی میکنی میکنی میکنی میکنی میکنی میکنی میکنی میکنی میکنی میکنی	

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June 01, 1995 Receiving Date: 05/20/95 Sample Type:: Water GPM Charge Code No: LRMON-U-2 Project Location; Monument	0-300	ANALYTICA GCL Attention 505 Marqu Albuquerg	L RESULT : Annet ette NW, ue, NM	S FOR te Monto Suite 1 87102	ya 100		Prep D Analys Sampli Sample Sample Projec	ate: 0 Is Date ng Date Condit Receiv t Name:	5/22/95 : 05/23 : 05/16 ion: In ed by: GPM	/95 /95 tact & C BL	
24 COC 1/97.64				TOTAL MET	ALS		Ba	Na	A1	B	Ma
TTA#	(mg/l)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(ng/L)	(mg/L)	(mg/L)	(mg/L)	(ng/L)
T36319 9505161520 MW-2 QC Quality Control	<0.1 4.6	<0.2 5.1	0.02	0.01 4.7	<0.1 4.7	<0.01 4.2	0.08 4.7	154.5 9.27	13.10 4.75	0.37	72.0 5.1
REPORTING LIMIT	0.1	0.2	0.01	0.01	0.1	0.01	0:05	0.10		<b>.</b> 0.05	0.1
RPD % Extraction Accuracy	3 78	3 78	2 80	2 79	3 88	0 100	3 88	0 113	4 90	0 90	1 87
Accuracy	92 Ca	102 Mo	96 Zn	94 Ni (mg/T)	94 Fe	B4 Co	94 Mn (mg/T.)	93 Cu	95 Si	95 Hg (mg/Ta)	
4736319 9505161520 MW-2	(mg/L) 315	0.05	0.05	<0.05	<u>(mg/L)</u> 5.82	<0.05	0.12	<0:05	20.0	<0.001	
QC Quality Control REPORTING-LIMIT	10.4	5.19 0.05	0.01	5.26 0.05	5.22 0.05	5.13 0.05	5.14 0.05	4.84 0.05	2.50 	0.0049 - 0.001	
		101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 - 101 -	2	3	, 2			2	2	0	
A LINELTUMENT ACCURACY	82 104	89 104	90 106	86 105	90 104	91 13	88 103	80 97	94 94	96 98	an a
METHODS: EPA'SW'846-3015, 601	0, 7470.	elan original de la segura de la Segura de la segura d Segura de la segura d	and the second sec second second sec	· · · ·		اع و المراقبة المراقب من المراقب من العالم المراكب و الواتي من السري الملايين المراقب و الموالي المراقب الملاتين المراقب و الموالي المات الملاتين و الموالي	الالالي الحريقة من المراجع المراجع الالالي في الحريقة المراجع المراجع الالالي الحريقية المراجع المراجع المراجع المراجع المراجع المراجع المراجع الم المراجع المراجع	1. 1995 - 1. 1995 - 1. 1995 - 1995 - 1995 - 1995 1995 - 1. 1996 - 1. 1996 - 1996 - 1996 - 1996 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996	ng na si	1944 - 1945 (2019) - 1945 (2019) 1949 - 1949 - 1947 (2019) 1947 - 1947 - 1947 (2019)	
OC: Blank Spiked with 5.0 mg/	L As, Se, Cr Si; 0.005	, Cd, Pb, mg/L Hg.	A, Ba,	Al, B, Mo	y, Mo, Zn	h, Ni, Fe	, Co, M	n, Cu;	lander og som en so En som en som En som en som	ا و و و در بار بار بار بار از در از از بار و رو بار بار بار بار بار بار بار بار و رو بار بار بار بار بار بار بار بار بار و رو بار	an a
	lander von der sone ster handen einer Stander von der sone sone sone sone sone sone An andere von der sone sone sone sone sone sone gann hater mit einer sone sone sone sone sone sone	en en forske sen en forske sjol Sen forske sen forske sen forske sen Anderske sen forske sen forske sen Anderske sen forske sen forske sen	P	5		Endergia Maria International Maria International Maria International Maria International Maria International	6	-1-9	5	a an bracht air an an a an a' gairt a' gairtean a thairean an an an an Angairtean an an an Angairtean	
	Director Director	, Dr. Bla , Dr. Bru	ir Leftw ce McDor	vich nell	· · · · · · · · · · · · · · · · · · ·			DATE		er angesta an	
	Estado Lateral III - Lateral III de Lateral de Lateral Martin III - Lateral III - Lateral de Lateral de Lateral Lateral - Lateral Estado III - Lateral de Lateral de Lateral Lateral - Lateral III - Lateral de Lateral de Lateral Martin III - Lateral III - Lateral de Lateral de Lateral	and the control of a second		· · ·					المجلوع ، و ، وقد ما المراجع المحسم المجلوع ، و ، وقد المجلم ، ومو محسم ، وهذه المجلم ، وقد المحسم ، ومو محسم ، وقد المحسم ، وقد المحسم ، وقد المحسم ،		

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B06+794+1296 FAX 806+794+1296 GCL AttentDon, Annette Montoys JOS Marquetres NW, sts. 1100 Allouquerque/+NM :87102 PAGE 1 of 2 Free Date: 05/20/95 Sampla Type: Water GPM Charge Code No." LRMON-U-20-300 Project Location: Nonument Code f9764 EFA 8240 Compounds (ug/L) MW-5 Limit Dichlorodifluoromethane ND 2 Vinyl choride ND 2 Vinyl choride ND 2 Vinyl choride ND 2 Vinyl chorodene ND 2 Vinyl chorodene ND 2 2 2 3 2 2 2 2 2 2 2 2 2 2 2 2 2	6701 Aberdeen Avenue Lubbock, Texas 79424					
Bub quertuer, NM, Stell, 1100     Albuquerque, NM, Stell, 1100     Prop. Date:   05/27/95     Receiving Date:   05/27/95     Sample Type:   Nalaysie Date:     OPM Charge Code No:   LRMON-U-20-300     Sample Type:   Sample Condition:     OPM Charge Code No:   LRMON-U-20-300     Project Location:   Monument     COC \$9764   Sample Received by:     BEPA 8240 Compounds (ug/L)   MM-5     Limit   Dichlorodifluoromethane     ND   2     Vinyl chloride   ND     Vinyl chloride   ND     Dichlorodifluoromethane   ND     ND   2     Trichlorofluoromethane   ND     ND   2     J-Dichlorodithane   ND     ND   2     Trichlorofluoromethane   ND     ND   2     J-1-Dichloroethane   ND     Vinyl acetate   ND     J-1-Dichloroethane   ND     Yunyl acetate   ND     J-1-Dichloroethane   ND     Zabtanome   ND     <	■ 806 • 794 • 1296 FAX 806 • 794 • 1298	ANALYTICAL RESULTS GCL Attention: Annette	FOR Montoya			
Name of System Analysis Date: 05/21/95   Sample Odd: Date: 05/21/95 Sample Condition: Intact & Cool   Sample Condition: Monument Sample Condition: Intact & Cool   COC #9764 Froject Name: GPM   T36318 Stronger of the second by the second	June 01, 1995	Albuquerque; NM 87	102 172 170 170 170 170 170	PAGE Prep Date::/05	1 of 2 /27/95	
T36318     PFA 8240 Compounds (ug/L)   MW-5   Limit     Dichlorodifluoromethane   ND   2     Chloromethane   ND   2     Vinyl chloride   ND   2     Bromomethane   ND   2     Vinyl chloride   ND   2     Bromomethane   ND   2     Trichlorofluoromethane   ND   2     1,1-Dichloroethene   ND   2     1,2-Dichloroethene   ND   2     1,1-Dichloroethene   ND   2     2-Butanone   ND   2     1,2-Dichloroethene   ND<	Receiving Date: 05/20/95 Sample Type: Water GPM Charge Code No: LRMON-U Project Location: Monument COC #9764	1-20-300	r S S T	Analysis Date: Sampling Date: Sample Condition Sample Received Project Name: (	05/27/95 05/16/95 on: Intact & 1 by: BL SPM	Cool
DichlorodifluoromethaneND2ChloromethaneND2Vinyl chlorideND2BromomethaneND10ChloroethaneND2TrichlorofluoromethaneND21,1-DichloroetheneND2IodomethaneND2IodomethaneND2IodomethaneND21,1-DichloroetheneND2IodomethaneND2IodomethaneND2IodomethaneND2IodomethaneND2IodomethaneND2IodomethaneND2IodomethaneND2IodomethaneND2IodomethaneND2IothioroethaneND2I,1-DichloroethaneND2J,2-DichloroethaneND2I,1,1-TrichloroethaneND2I,2-DichloroethaneND2I,2-DichloroethaneND2I,2-DichloroethaneND2I,2-DichloroethaneND2I,2-DichloropropaneND2I,2-DichloropropaneND2IothioropthaneND2IothioropthaneND2IothioropthaneND2IothioropthaneND2IothioropthaneND2IothioropthaneND2IothioropthaneND2IothioropthaneND2 <th>EPA 8240 Compounds (ug/L)</th> <th>9</th> <th>T36318 505161440 MW-5</th> <th></th> <th>Reporting Limit</th> <th></th>	EPA 8240 Compounds (ug/L)	9	T36318 505161440 MW-5		Reporting Limit	
Trichlorofluoromethane   ND   2     Trichlorofluoromethane   ND   2     1,1-Dichloroethene   ND   2     Todomethane   ND   2     Todomethane   ND   2     Todomethane   ND   2     Todomethane   ND   2     Methylene chloride   ND   2     Methylene chloride   ND   2     trans-1,2-Dichloroethene   ND   2     1,1-Dichloroethane   ND   2     Vinyl acetate   ND   2     2-Butanone   ND   100     Chloroform   ND   2     1,2-Dichloroethane   ND   2     1,1,1-Trichloroethane   ND   2     1,2-Dichloroethane   ND   2     1,2-Dichloroethane   ND   2     1,2-Dichloroethane   ND   2     1,2-Dichloropropane   ND   2     Trichloroethane   ND   2     1,2-Dichloropropane   ND   2     Trichloroethane   ND   2     ND   2	Dichlorodifluoromethane Chloromethane Vinyl chloride Bromomethane		ND ND ND ND		2 2 2 10	
Methylene chloride   ND   10     trans-1,2-Dichloroethene   ND   2     1,1-Dichloroethane   ND   2     Vinyl acetate   ND   2     2-Butanone   ND   100     Chloroform   ND   2     1,1,1-Trichloroethane   ND   2     1,2-Dichloroethane   ND   2     1,2-Dichloroethane   ND   2     1,2-Dichloroethane   ND   2     1,2-Dichloroethane   ND   2     Enzene   265   2     Carbon Tetrachloride   ND   2     1,2-Dichloropropane   ND   2     Trichloroethene   ND   2     Bromodichloromethane   ND   2	Trichlorofluoromethane 1,1-Dichloroethene Iodomethane Carbon disulfide		ND ND ND ND ND		2 2 2 10 2	
1,1,1-Trichloroethane   ND   2     1,2-Dichloroethane   ND   2     Benzene   265   2     Carbon Tetrachloride   ND   2     1,2-Dichloropropane   ND   2     Trichloroethene   ND   2     Bromodichloromethane   ND   2     ND   2   4     1,2-Dichloropropane   ND   2     1,2-Dichloromethane   ND   2	trans-1,2-Dichloroethene 1,1-Dichloroethane Vinyl acetate 2-Butanone		ND ND ND ND ND		2 2 2 100	
Trichloroethene Bromodichloromethane	L,1,1-Trichloroethane 1,2-Dichloroethane Benzene Carbon Tetrachloride		ND ND 265 ND		2 2 2 2 2	
-C18-1,3-Dichloropropene 4-Methyl-2-pentanone ND 100	Trichloroethene Bromodichloromethane cis-1,3-Dichloropropene 4-Methyl-2-pentanone		ND ND ND ND ND		2 2 2 2 100	
Toluene ND 2   Toluene 9 2   1,1,2-Trichloroethane ND 2   2-Hexanone ND 100	Toluene J.1.2-Trichloroethane 2-Hexanone		אם 9 אם אם		2 2 2 2 100	
A Laboratory for Advanced Environmental Research and Analysis		TRACEANAL aboratory for Advanced Environm	YSIS, I Tiental Research	NC		

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Project Location: Monument				
Project Name: GPM				
			<b>T36318</b>	
LPA 8240, Compounds			9505161440	Reporting
			an −3. An the second	
Dibromochloromethane		的新闻的时间	ND	1 Mar. 2 1 - 1
Tetrachloroethene			ND	2
			ND 261	2
m & p-Xylene			ND	2 =
Bromoform			ND	2
Styrene.			ND	2
	1、水学家1、1、1111年間 1月1日日 1月1日日日日日日日日日日日日日日日日日日日日日日日日日日日日日		50	2
trans 1,4-Dichloro-2-butene		이번 이 약은 방상에서 이 분석 21월 22일 명은 이 가지 않는 것이 있다.	NU	2
cis 1,4-Dichloro-2-butene			ND	10
1,4-Dichlorobenzene	는 외위 환수의 가슴 것으로 가용 많 같은 사람 기술 관계가 방송 많		ND	

1,3-Dichlorobenzene 1,2-Dichlorobenzene i i din

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SURROGATES

**% RECOVERY** 

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	Dibromofluo	romethane			0E		
Ś		Lomechane			70	. '	1
	Toluene-d8				92		
, Î	4-Bromofluor	robenzene		いては読み	01.		
5			하는 일을 받았다.	그는 생김 동물에	<b>71</b>	an 15 ann 16 Martairte	
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	同时时间带全国的	後有法律的问题					
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ć					等型性的 1.1 人名法兰尔 1.4 人名 美国哈姆 1.4 人名英格兰人名		
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METHODS: EPA SW 846-5030; EPA 8240. 

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Director, Dr. Blair Leftwich Director, Dr. Bruce McDonell

6-1-95 Date ve i

6701 Aberdeen Avenue Lubbock, Texas 79424 806•794•1296 ANALYTICAL RESULTS FOR FAX 806 • 794 • 1298 GCL Attention: Annette Montoya 505 Marguette NW, Ste. 1100 Albuquerque, NM 87102 PAGE 1 of 2

June 01, 1995 建造的 Receiving Date: 05/20/95 Receiving Date: 05/20/55 Sample Type: Water GPM Charge Code No: LRMON-U-20-300 Project Location: Monument COC #9764

Prep Date: 05/27/95 Analysis Date: 05/27/95 Sampling Date: 05/16/95 Sample Condition: Intact & Cool Sample Received by: BL Project Name: GPM

사망가 있는 것은 가장에 가장		T36319	
		9505161520	Reporting
EPA 8240 Compounds (ug/L)		MW-2	Limit
Dichlorodifluoromethane		ND	1
Chloromethane		ND	<b>1</b>
Vinyl chloride		ND	1
Bromomethane		ND	. 5
Chloroethane		ND	1
Trichlorofluoromethane		ND	1
1,1-Dichloroethene		ND	1
Iodomethane		ND	5
Carbon disulfide		ND	
Methylene chloride		ND	5
trans-1,2-Dichloroethene		ND	
1,1-Dichloroethane		ND	
Vinyl acetate		ND	
2-Butanone		ND	50
Chloroform		ND	
1,1,1-Trichloroethane		ND	1
1,2-Dichloroethane		ND	1
Benzene		ND	1
Carbon Tetrachloride		ND	
1,2-Dichloropropane		ND	1
Trichloroethene		ND	······································
Bromodichloromethane		ND	
cis-1,3-Dichloropropene		ND	
4-Methyl-2-pentanone	المرجع والمرجع والمحاج والمحاج والمحاج	ND	50
trans-1,3-Dichloropropene	an a	ND	1
Toluene		ND	1
1,1,2-Trichloroethane		ND .	
2-Hexanone •		ND	50
	and the second	State of the state of the state	

RACEANALYSIS A Laboratory for Advanced Environmental Research and Analy Project Location: Monument Project Name: GPM

GCL

				MW-2		I	,imit	
Dibromochloromethane		- 1 - 1 <del>-</del> 1		ND	5 . 12		1	÷
Tetrachloroethene Chlorobenzene				ND ND			1	-
Ethylbenzene m & p-Xylene		م مراجع کردی در سرور مراجع کرد موادق		ND ND			1	
Bromoform				ND			1	· . · .
Styrene	같다. 한 번째 이 이번 등 전 1월 1일 문			ND		· .	- 1	 
o-Xylene				ND	•	•	1	
1,1,2,2-Tetrachloroeth	ane			ND			1	. •
trans 1,4-Dichloro-2-1	outene			ND	· .		5	. :
cis 1,4-Dichloro-2-but	:ene	- -		ND			5	• •
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1,3-Dichlorobenzene				ND			2	•
1,2-Dichlorobenzene				ND	· _ · ·		2	·

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SURROGATES

RECOVERY

Dibromofluoromethane	94	· · ·
Toluene-d8	- 92	
4-Bromofluorobenzene	92	· · · ·
2019년 2017년 2017년 1월 2019년 2017년 2019년 2017년 br>1월 2017년 1월 2017년 1월 2017년 br>1월 2017년 2		

*ND = Not Detected

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3.12 METHODS: EPA SW 846-5030; EPA 8240. 

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Director, Dr. Blair Leftwich Director, Dr. Bruce McDonell

10.2.44

6-1-95

Date

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PAGE 2 of

# 6701 Aberdeen Avenue

Lubbock, Texas 79424 806•794•1296

1.15

FAX 806 • 794 • 1298

# ANALYTICAL RESULTS FOR

GCL Attention: Annette Montoya 505 Marquette NW, Suite 1100 Albuquerque, NM 87102 Une 01, 1995 Receiving Date: 05/20/95 Sampling Date: 05/16/95

Sample Type: Water

Sample Received by: BL

Project Location: Monument

COC# 9764

PAH's	Reporting	9505161440			Analysis Date: (	5/25/95
EPA 8270 (mg/L)	Limit	MW-5	QC 🐇	RPD	**************************************	%IA
Naphthalene	0.0004	0.006	49.7			99
Acenaphthylene	0.0004	ND	47.9			96
Acenaphthene	0.0004	ND	47.5	0	90	95
Fluorene	0.0004	ND	46.8			94
Phenanthrene	0.0004	ND	47.1			94
Anthracene	0.0004	ND	46.8			94
Fluoranthene	0.0004	ND	45.7			91
Pyrene	0.0004	ND	52.4	1	105	105
Benzofalanthracene	0.0004	ND	48.8			98
Chrysene	0.0004	ŇD	49.4	to the fact		99
Benzo[b]fluoranthene	0.0004	ND	49.6			99
Benzo[k]fluoranthene	0.0004	ND	46.5	· . ·		93
Benzo[a]pyrene	0.0004	ND	49.2			98
Indeno[1,2,3-cd]pyrene	0.0004	ND	49.2			96
Dibenz[a,h]anthracene	0.0004	ND	49.0			98
Benzola h ilbendene	0 0004	ND-	53 7			107

*ND = Not Detected

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2-Fluorophenol SURK	47.5	8 <b>8</b> 7 - 1	19 10		2.2.4	24.6	30	9-4 H
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2,4,6-1 noromophenol SL	IKK 🐇	135			1.1	3	10	
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Terphenvi-d14 SURR	2.3.5					SQ (4)	121	

METHODS: EPA SW 846-3510; EPA 8270

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DATE

IIIII TRACEANALYSIS

Director, Dr. Blair Leftwich

Director, Dr. Bruce McDonell

6701 Aberdeen Avenue : Lubbock, Texas 79424 806 • 794 • 1296 FAX 806 • 794 • 1298

# ANALYTICAL RESULTS FOR GCL Attention: Annette Montoya 505 Marquette NW, Suite 1100 Albuquerque, NM 87102

T36319

June 01, 1995 Receiving Date: 05/20/95 Sampling Date: 05/16/95 Sample Type: Water Sample Condition: Intact & Cool Sample Received by: BL Project Name: GPM Project Location: Monument

COC# 9764

DATE

PAH's	Reporting	9505161520			Analysis Date: 0	5/25/95
EPA 8270 (mg/L)	Limit	MW-2	QC	RPD	%EA	%IA
Naphthalene	0.0004	ND	49.7			99
Acenaphthylene	0.0004	ND	47.9			96
Acenaphthene	0.0004	ND	47.5	0	90	95
Fluorene	0.0004	ND	46.8			94
Phenanthrene	0.0004	ND	47.1			94
Anthracene	0.0004	ND	46.8			94
Fluoranthene	0.0004	ND	45.7		•	91
Рутепе	0.0004	ND -	52.4	1	105	105
Benzo[a]anthracene	0.0004	ND	48.8	-		98
Chrysene	0.0004	ND	49.4			99
Benzo[b]fluoranthene	0.0004	ND	- 49.6			99
Benzo[k]fluoranthene	0.0004	ND	46.5			93
Benzo[a]pyrene	0.0004	T ND	49.2			98
Indeno[1,2,3-cd]pyrene	0.0004	ND	49.2			96
Dibenz[a,h]anthracene	0.0004	ND	49.0			98
Benzo[g,h,i]perylene	0.0004	• ND÷	53.7			107

*ND = Not Detected

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Laboratory for Advanced Environmental Research and Analysis

METHODS: EPA SW 846-3510; EPA 8270.

Director, Dr. Blair Leftwich Director, Dr. Bruce McDonell

Lubbock 1exas /9424 15				
FAX 800▼/94●1298	ANALYTICAL RESUL	LTS FOR		
	GCL Attention: Ann	ette Montova	변화가 (6.884) 가 있는 (6.984) - 그 그는 도마 만하고 한 것을 가 하는 것을 가 하는 것을 가 하는 것을 하는 것을 하는 것을 가 하는 것을 - 그 그 그 그 그 그 그 그 그 그 그 그 그 그 그 그 그 그 그	
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June 13, 1995			Analysis Date: 06/0	9/95
Receiving Date: 05/20/95			Sampling Date: 05/1	6/95
Sample Type: Water	i–tt–20–300		Sample Condition: In Sample Received by:	BL
Project Location: Monumen	10 20 300		Project Name: GPM	
			COC #9764	
		TOTAL AEROBIC		14 - A
		HETEROTROPHIC	TOTAL HYDROCARBON	· · ·
		PLATE COUNT	UTILIZING BACTERIA cfu/mL	
		Cru/mi	•••••	
T36318 9505161440	MW-5	1.55E+06	2.45E+04	· .
T36319 9505161520	MW-2	3.40E+05	2.80E+04	
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				نية. ري
11日日 日本 日				e e e e e e e e e e e e e e e e e e e
	(予め思想) くためかい たんさんい たんろ	"我们的我的问题,你们的想得,你就是你的吗?"		
			이는 것이 왜 가슴다. 영화 소리는 것이	
	R	/		
	P.	6-13-95		
	P.	6-13-95		
Director, Dr.	Blair Leftwich Bruce McDonel1	6-13-75 DATE		
Director, Dr. Director; Dr:	Blair Leftwich Bruce McDonell	6-13-75 DATE		
Director, Dr. Director, Dr.	Blair Leftwich Bruce McDonell	6-13-75 DATE		

RACEA

A Laboratory for Advanced Environmental Research and Analysis

YSIS, IN

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6701 Aberdeen Avenue Lubbock, Texas 79424

806•794•1296

FAX 806•794•1298

ANALYTICAL RESULTS FOR GCL Attention: Annette Montoya 505 Marquette NW, Suite 1300 Albuquerque, NM 87102

June 13, 1995 Receiving Date: 05/20/95 Sample Type: Water GPM Charge Code No: LRMON-20-300 Project Location: Monument Booster Station COC #9764 Extraction Date: 05/23/95 Analysis Date: 05/23/95 Sampling Date: 05/16/95 Sample Condition: Intact & Cool Sample Received by: BL Project Name: Monument Booster Station

2-methylnaphthalene/ 1-methylnaphthalene (mg/L)

0.001

		· .	
<b>T36318</b>	9505161440 MW-5	ND	
<b>T36319</b>	9505161520 MW-2	ND	
QC	Quality Control	49.2	

FIELD CODE

Reporting Limit

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METHODS: EPA SW 846-8270, 3510.

DATE

Director, Dr. Blair Leftwich Director, Dr. Bruce McDonell

# I MALLA TRACEANALYSIS, INC.

A Laboratory for Advanced Environmental Research and Analysis

GCL mvironmental Science and Engineering BDM International Company	Albuque 505 Marqu Albuquerqu (505) 842-0 FAX: (505)	orque ette NW, Ste. 1100 Je, NM 87102 0001 842-0595	(301 FAX	1id Atl 1 Fort ham, 1 1) 459 1: (301	antic bes Bi MD 20 -9677 ) 459-	Regior vd., Sti 0706-4 -3064	1 e. 240 1325		ľ	D NA PO Di Las C (505) FAX:	SA-W rawer ruces 524-5 (505)	STF MM NM 8 353 524-53	18004 15						C	Ch	ai	in ar	0	f (		st	od	Ŋ
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Samplers (SIGNATURES) Sample Number	Du nyroz Matrix	Location	Halogenated Volatiles 601/801	Aromatic Volatile: 602/8020	Phenols, Sub Phe 604/8040	Pesticides/PCB 608/8080	Polynuclear Aron Hydrocarbons 61	Volatile Compour GCMS 6248240	Base/Neu/Acid C GC/MS 62378270	Total Organic Cal (TOC) 415/9060	TOX) 9020	Hydrocarbons 41 TPH/BTEX	Modified 8015 TCLP- Vol., Semi	Herbicides, Pestiv TCLP- Metals	RCRA Metals(8)	ALLEN -	CAM Metals (18) TTLC/STLC	Flash Point	Corrosivity	Reactivity	Oil & Grease	Cyanide Total/An	Chemical Oxyger Demand (COD)	Re. Late 1	Hydroue be	>	Meyor Low	Number of Lor
9555161440	HOO	MW-5	3	63	18	7		X	X							$\mathbf{N}$								$\mathbf{\nabla}$	$\mathbf{X}$		X	7
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L APPENDIX D

# Appendix D Survey Plat

WELL NO.	COOR	DINATES	ELEVATION	LOC. OF ELEVATION
MW #1	S 3+27	E 1+76	3588.85 3591.15	TOP OF PLATE N. SIDE TOP OF PIPE N. EDGE
MW #1D	S 3+21	E 1+76	3589.06 3591.31	TOP OF ALU. CAP. N. SIDE TOP OF PIPE N. EDGE
MW #2	N 0+65	W 0+60	3594.13 3596.30	TOP OF PLATE N. SIDE TOP OF PIPE N. EDGE
MW #3	S 7+69	E 4+87	3581.46 3583.86	TOP OF ALU. CAP N. SIDE TOP OF PIPE N. EDGE
MW #4	S 6+78	E 2+07	3586.10 3588.77	TOP OF ALU. CAP N. SIDE TOP OF PIPE N. EDGE
MW #5	S 4+80	E 0+29	3589.62 3592.16	TOP OF ALU. CAP N. SIDE TOP OF PIPE N. EDGE
MW #7	S 2+42	E 4+72	3587.37	GROUND
	S 4+08	E 1+66		NE COR. CONTAINMENT WALL

### PLANT COORDINATES AND ELEVATIONS

NOTE: BENCH MARK ELEV. = 3588.26 AT 3 1/2" I.P. W/3" BRASS PLATE AT S 3+20 E 2+00

⊙ MW #2

•

⊙ S0+00 E2+00

⊙ SB #7

MW ^{#1−D}⊕⊙S3+20 E2+00 MW ^{#1}

0 NW #5

O MW #4

⊙ MW #3

600 300 0 300 E SCALE: 1"=300' GEOSCIENCE CONSULTANTS Ltd. LOCATION OF MONITOR WELLS AND SOIL BORINGS AT THE GPM CORP. MONUMENT BOOSTER STATION IN SECTION 33, TOWNSHIP 19 SOUTH, RANGE 37 EAST N.M.P.M., LEA COUNTY, NEW MEXICO. Survey Date: 6/1/95 Sheet 1 of 1 Sheets Drawn By: JAMES L. W.O. Number: 95-11-0861 PRESLEY JOHN W. WEST ENGINEERING COMPANY DISK: JLP#130 GE00861 Date: 6/17/95

I HEREBY CERTIFY THAT THIS PLAT WAS PREPARED FROM FIELD NOTES OF AN ACTUAL SURVEY AND MEETS OR EXCEEDS ALL REQUIREMENTS FOR LAND SURVEYS AS SPECIFIED BY THIS STATE

San 2	320 6.20	-95
JOHN W. WEST,	N.M. P.E. & P.S.	No. 676
RONALD J. EIDSON,	NUM. L.S.	No. 3239
GARY G. EIDSON,	TEXAS P.L.S. N.M. E.S. TEXAS P.L.S.	No. 12641 No. 4735

CONSULTING ENGINEERS & SURVEYORS - HOBBS, NEW MEXICO



Appendix E

Photographic Documentation



View facing west showing well completion operations for monitoring well MW-1D located adjacent (6 feet north) to monitoring well MW-1.



View facing northeast showing wellpad completion operations for MW-1D.





View facing north showing drilling operations for soil boring SB-7 located approximately 300 feet cross-gradient (east-northeast) from monitoring well MW-1.



View facing southeast showing drilling operations for monitoring well MW-3 located approximately 500 feet downgradient (southeast) of monitoring well MW-1.



View facing northwest showing Monument Booster Station (background) and drilling operations for monitoring well MW-4 located approximately 350 feet south of monitoring well MW-1.



View facing east-northeast showing well completion operations for monitoring well MW-5 located approximately 200 feet southwest of monitoring well MW-1.



# Office Locations



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Montgomery, Alabama Huntsville, Alabama Phoenix, Arizona Tucson, Arizona Redlands, California Monterey, California Denver, Colorado Colorado Springs, Colorado Washington, D.C. Panama City, Florida Pensacola, Florida Fort Benning, Georgia Chicago, Illinois Des Moines, Iowa Fort Knox, Kentucky Louisville, Kentucky Gaithersburg, Maryland Germantown, Maryland Lanham, Maryland Boston, Massachusetts Dearborn, Michigan Helena, Montana Las Vegas, Nevada Albuquerque, New Mexico Las Cruces, New Mexico Dayton, Ohio

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